SEPTEMBER • 1948

Vol. 5 • No. 9

LONDON GUARANTEE BUILDING
Michigan Avenue at Wacker Drive
THE HOME OF

finish

MONTHLY TRADE PUBLICATION
Published by
DANA CHASE PUBLICATIONS
360 North Michigan Avenue
Chicago 1
Telephone Central 1229

The only independently published trade publication devoted exclusively to Porcelain Enameling and Ceramic Finishing on metal.

Free controlled circulation to management, purchasing and key plant personnel in companies intimately connected with the domestic ceramic finishing industry. To others, subscription price $3.00 per year. Foreign subscription price (U. S. funds) $5.00 per year.

Editor and publisher, DANA CHASE. Associate editors, PROF. A. I. ANDREWS and PROF. R. M. KING.

Acceptance under the act of June 5, 1934, at Aurora, Illinois, authorized January 7, 1948.

finish

CERAMIC FINISHES ON METAL

From the Editor's mail . . .

replies to "The Finish Line" Packaging and Shipping

"not confined to the hump"

Dear Mr. Chase:

"I don't know but that you have hit upon most of the principal causes of damage to enamel-ware in the editorial in 'Finish' for July.

"There is one item I take exception to. No. 5 lists humping of freight cars. Unquestionably, there is carelessness in the switching of cars, but it is not confined to the so-called hump or retarder operation. Our long experience indicates that where damage results from over-speed impact, it usually happens in flat switching and not from putting the cars over the hump, which are generally ridden by a switchman who breaks the car down to a slow stop. . ."

A. L. Green, Special Representative
Freight Claim Division
Association of American Railroads
Chicago, Illinois

"this condition no longer exists"

Dear Sirs:

"I very much appreciate the copy of the editorial from FINISH Magazine. Editorials of this type are going to be very helpful to the crate manufacturers who are endeavoring to furnish a product that will carry satisfactorily. The railroads should, also, welcome information of the nature contained in the editorial.

"For the past two years, the manufacturers have been forced to use inferior products but this condition no longer exists and a concentrated effort by the railroads, the crate manufacturers, and the publishers such as yourself should do much toward eliminating the tremendous damage that has been encountered over the past two years.

"If additional copies of this editorial are available, we would greatly appreciate receiving fifteen copies for our salesmen."

A. L. Whiton, Sales Manager
Chicago Mill and Lumber Co.
Chicago, Illinois

"a very interesting approach"

Gentlemen:

"The July 'Finish Line' contained a very interesting approach to the packing and loading problem your industry is facing.

"I hope you will continue this editorial barrage, as it should help promote better shipping within your industry."

R. A. Morris, Asst. to the President
Acme Steel Company
Chicago, Illinois

"we would like . . . ten copies"

Dear Sir:

"Your editorial from the July 1948 issue of Finish is certainly very much to the point and you are to be commended for an excellent handling of a most important subject. We as a company, and also our wirebound box manufacturing industry, are vitally interested in reducing the hazards of shipping finished products as they exist today. Such items must be packaged properly to reach destination safely and such safe packaging can most properly start in many cases at the drawing board of the designer. Consideration must be given to allowing facilities which will permit bolting, blocking or other means of anchoring articles which are being shipped, thus permitting the shipping container itself to do its protective job properly.

"Sincerely hope that your program will be most successful. . . .

"If they are available, we would like very much to have about ten copies of the July 1948 editorial, and we thank you in advance for them."

Edw. E. Johnson
The Martin Brothers Box Co.
Whittier, California

your provocative "Editor's Note"

Dear Sir:

"I want to thank you very much indeed for the exceptionally nice treatment you gave us in your July issue of FINISH. We certainly appreciate your interest.

"Also, my most sincere appreciation for your very provocative 'Editor's Note.' We would welcome the opportunity to review any pro and con comments you receive. We agree perhaps it may stimulate such a reaction, and certainly hope so."

Frederic H. Rahr, President
Rahr Color Clinic
New York, New York

"usually on the top of the pile"

Gentlemen:

"I have been carrying the address of Dana Chase around in my billfold for some time intending to write him complimenting him on the fine work he is doing as an editor of Finish. Wherever I go I find the magazine in the waiting room and usually on the top of the pile. Upon inquiry I find it is looked upon as the leading publication in the field.

"Tell Dana that I am more convinced than ever that Architectural Porcelain is in its infancy. I find architects are well acquainted with porcelain and know its qualities, but they are not so sold on the quality of work that the industry is doing. Your magazine has a large responsibility in educating the industry on how to produce good architectural porcelain so these bad jobs do not keep going up. . . ."

Roy E. Dybvig
Dybvig Porcelain Company
Los Angeles, California

comments from readers

Toledo Scale Company, Toledo, Ohio

(Scales)

"These publications are circulated in the three departments concerned and then returned to our library files which, in turn, are sent annually to the University of Toledo Library."

J. W. Read, Plant Librarian

Jury Holloware, Brierley Hill, England

(Holloware)

"I have recently received a copy of your journal 'finish' from my friend Mr. C. P. Scripture of the Ingram-Richardson Mfg. Co. of Indiana.

"We should very much like to become subscribers to 'finish' as we are engaged in the enamel business and the writer has also visited the States during the past 12 months. If this is possible we should be pleased to receive your invoice for a period of 1 year, or for a longer period if this is at a reduced rate. We shall, of course, have to receive your invoice to enable us to apply to the bank for the transference of dollars.

"We might also add that we have been recommended by Mr. Astles of The Union Oxide & Chemical Co. Ltd., of London, and he has asked us to mention his name in this letter."

W. H. Silk, Director

A. F. Thompson Mfg. Co., Huntington, W. Va.

(Gas heaters)

"Look forward to receiving each issue of FINISH. Have found it very interesting as well as helpful in many ways."

R. B. Brownfield, Manager — Enameling Dept.

Union Oxide & Chemical Co., Ltd., London, England

"I hasten to reply to your kind letter of the 16th June and I have already received, with much interest, the June issue of your publication. I certainly enjoyed seeing some of the photographs which you have displayed therein . . .

"I might say that we are subscribers to your publication 'Finish' and I have always enjoyed, very much, reading same.

"Trusting that I may again have the pleasure of seeing you on my next visit to America . . ."

W. Astles

Electromaster, Inc., Mt. Clemens, Michigan

(Stoves)

"I would very much appreciate your monthly copy of FINISH. I am a millroom man and find your magazine very interesting and educational."

John J. Duynslager, Jr., Millroom

Day & Night Mfg. Co., Monrovia, California

(Water heaters and space heaters)

"I find much useful information in your issues of FINISH. One of our completed research problems was on porcelain enameling of space heater flues operating at elevated temperatures of approximately 1000° F. This item is now in production. Several other research problems are in the offing, so I would appreciate receiving the future issues."

Lee R. Erwin, Research Engineer

Armco Steel Corporation, Middletown, Ohio

(Steel and iron sheets)

"FINISH is interesting, instructive and up to date, such a magazine as the enameling industry needs. You are doing a swell job."

Fred Sutphen, Enamel Consultant

Roberts & Mander Corporation, Hatboro, Pa.

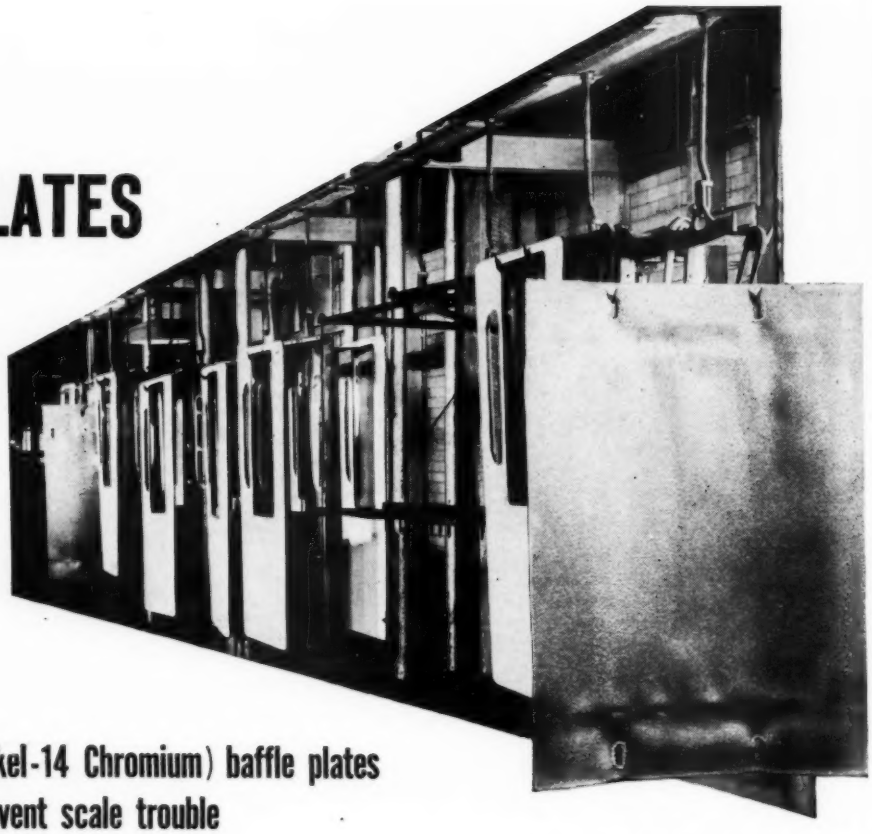
(Stoves)

"I would appreciate receiving your monthly publication FINISH as I am quite interested in your articles.

"I have just been appointed chief inspector in addition to my present position as service manager for the above company and find your magazine very helpful."

Franklin R. Tettemer, Chief Insp. & Service Manager

WHERE BAFFLE PLATES ARE NEEDED



Inconel Baffle plates made by Ferro Enamel Corp. spaced at intervals to reduce radiation losses.

"INCONEL" (80 Nickel-14 Chromium) baffle plates cut heat losses...prevent scale trouble

Bothered with the problem of proper material for baffle plates?

Then here's a tip from the Norris Stamping and Manufacturing Co., Los Angeles.

Use Inconel.

Norris Stamping tried many materials for baffle plates . . . with the same results. They rapidly scaled away under high enameling heats. Finally they tried Inconel. And their baffle plate worries were over.

Here's why!

Because this high nickel alloy is anti-spalling. Its tightly adhering oxide doesn't scale off to spoil freshly enameled surfaces.

Because Inconel has good thermal endurance . . . withstands high temperatures . . . stays on the job longer.

And Inconel is economical. This long-lived, anti-spalling, high-nickel alloy compares in cost to other high-temperature alloys.

Remember Inconel in connection with other enameling equipment . . . hanger bars, burning tools, and fixtures. If you've a special problem, write us in detail. INCO engineers will be glad to help you with its solution.

EMBLEM OF SERVICE
INCO MONEL TRADE MARK

THE INTERNATIONAL NICKEL COMPANY, INC., 67 Wall Street, New York 5, N.Y.

INCONEL* . . . for long life at high temperatures

(80 NICKEL-14 CHROMIUM)

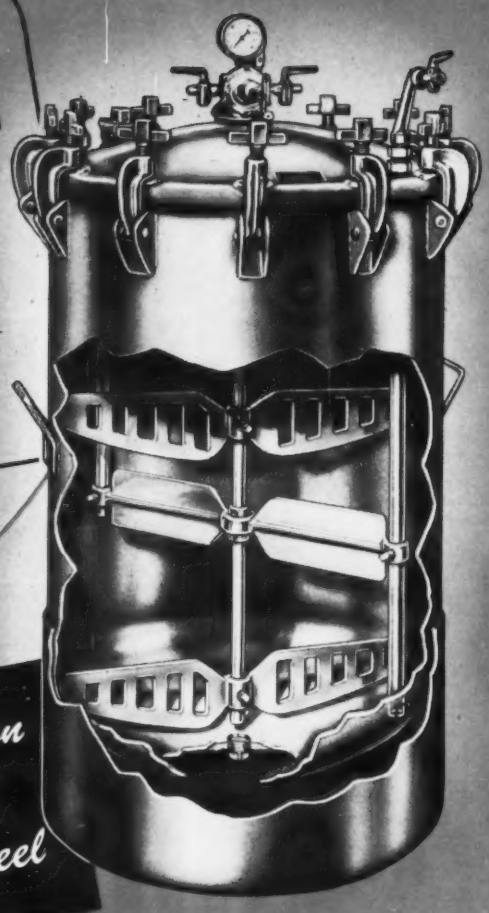
*Reg. U. S. Pat. Off.

a new

CORROSION-PROOF

pressure material tank

FOR CERAMIC FINISHES



"If it's made by Binks, it's made right".

J. E. Roche
President

Copper silicon alloy and stainless steel

The shell, head and paddles of this Ceramic material tank are made of strong, durable copper silicon alloy. The agitator shaft and the material tube are of stainless steel. Both air and electric driven motors are available for the agitation of this tank.

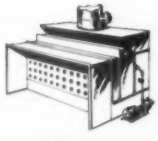
Binks designed this exceptional pressure material tank especially for ceramic finishes. All parts are of corrosion-proof materials, manufactured to the usual high Binks standards. There are no coatings or platings used in this tank. These would wear off in time and cause trouble. All parts are corrosion-proof *all the way through.* Rust cannot form in this tank! There is no chance for impurities to get into the frit.

The additional cost of this special tank is a small premium to pay for complete and permanent protection against the formation of rust which may spoil an entire tank of costly frit. The superior agitation equipment of this tank keeps the frit of uniform consistency. This, coupled with the corrosion resistance of the tank, greatly reduces the number of rejects . . . and results in still further economies.

EVERYTHING YOU NEED FOR COMPLETE CERAMIC FINISHING

Ceramic Spray Guns

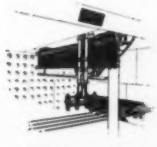
Oil and Water Extractors



Ceramic Spray Booths

Air Compressors

Hose and Accessories



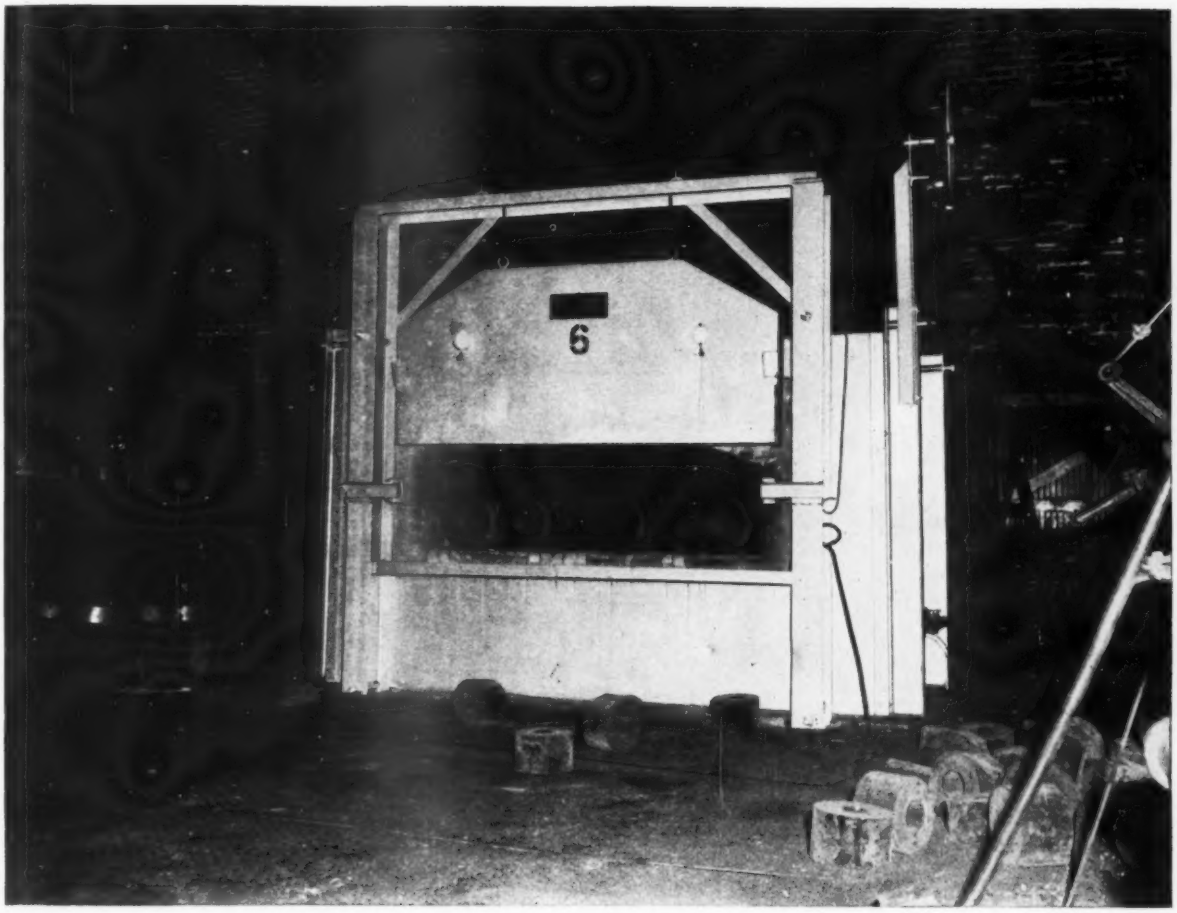
Automatic Spray Finishing

Binks **MANUFACTURING COMPANY**

3122-40 Carroll Avenue, Chicago 12, Illinois

NEW YORK DETROIT LOS ANGELES ATLANTA BOSTON CLEVELAND DALLAS MILWAUKEE NASHVILLE
PHILADELPHIA PITTSBURGH ST. LOUIS SAN FRANCISCO SEATTLE WINDSOR, ONTARIO, CANADA

Send now for your free copy of our new Catalog-Data book which fully describes our new pressure material tanks and other ceramic finishing equipment.



A new Huyck furnace used for heat treating forgings at Atlas Forging Co., Cicero, Ill.

IT'S HUYCK

FOR FURNACES...ALL KINDS

★ ★ ★ For over 20 years Huyck has been building industrial furnaces. While the majority have been enameling furnaces, Huyck has built heat treating furnaces, forging furnaces, smelters. And during those years, Huyck has built an enviable reputation for highest quality workmanship in both new construction and maintenance of furnaces, as well as in other skilled masonry work that includes relining mills.

★ ★ ★ The point is — no matter what your individual furnace or masonry work is, Huyck can do the job . . . quickly, efficiently, and at a price that's right.

HUYCK CONSTRUCTION COMPANY

2946 North 78th Court • Phone: GLadstone 3-8604

ELMWOOD PARK, ILLINOIS

Attention to

For the want of a nail a shoe was lost; for the want of a shoe a horse was lost; for the want of a horse a battle was lost! And on and on and on! Each step representing some factor in business that fails because of the lack of attention to detail. It is because of our sincere appreciation of the IMPORTANCE of detail that we have set up a complete control system specifically designated to the important task of Checking every minute operation in the production of Pemco frit . . . from the purchases of the raw materials to the delivery of the frit to you in the famous dust proof . . . automatically filled . . . easily distinguishable valve bag. Yes to Pemco detail is of extreme importance—demanding attention and getting the attention it deserves. How important this control of detail is to your progress can be quickly evaluated by a single order of any Pemco products. The satisfaction that results is definitely desirable.

PEMCO COR

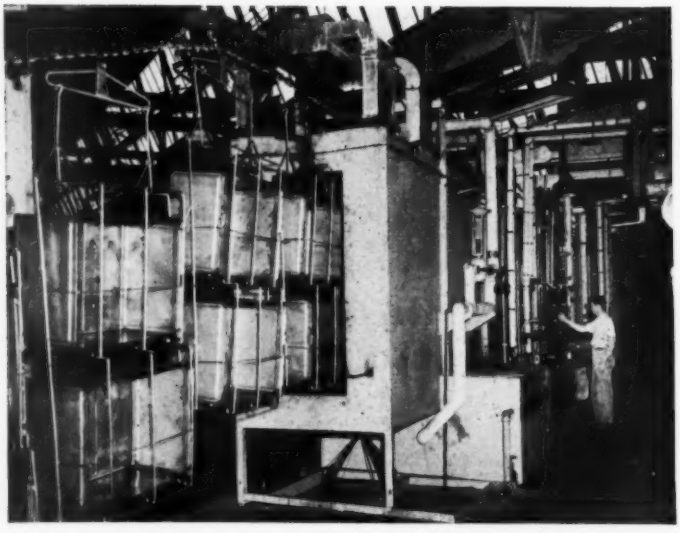
DETAIL

RPORATION

Baltimore 24, Maryland

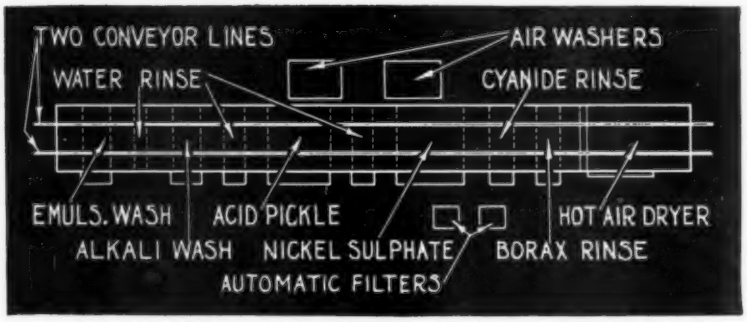
Always Begin With a Good Finish

7 reasons why CONTINUOUS SPRAY PICKLING IS BEST for preparing steel parts for PORCELAIN ENAMELING



Above illustrates a typical METALWASH Continuous Spray Pickler, processing parts prior to porcelain enameling.

At the right is a diagram of a typical double line METALWASH Continuous Spray Pickler, showing the complete cleaning, pickling, neutralizing and drying cycle.



METALWASH CONTINUOUS SPRAY PICKLING EQUIPMENT

like that illustrated above provides better cleaning and pickling prior to porcelain enameling, because:

1. **The exact cycle is automatically controlled, eliminating the human factor.**
2. **Less solution is required in each stage of the process — thus reducing operating expenses.**
3. **Spray cleaning and pickling is much more efficient and thorough.**
4. **Spray rinsing is more effective, and ware does not dry between the stages of the cycle.**
5. **A uniform deposit of nickel of thickness recommended by good practice is obtained.**
6. **Effective exhaust venting eliminates obnoxious fumes and vapors.**
7. **Fully automatic machinery eliminates handling problems.**

WRITE FOR FURTHER INFORMATION

METALWASH MACHINERY CORP.
149 - 155 SHAW AVENUE IRVINGTON 11, NEW JERSEY

NEXT TIME

Re-line with...

McDANEL MILL LINING BRICK

Extra fired for complete vitrification, McDanel Mill Lining Brick have tough stoney structures that assure longer wear and profitable service. Made of specially developed vitreous porcelain, they are unsurpassed for top performance. Use McDanel Lining Brick to provide a greater duration between relinings and to cut grinding time to a minimum. Let them prove themselves in your plant as they have in so many others. To simplify the mason's work, McDanel Fill-in-Brick is made in special widths to save time and give a better relining job.

Any time you are in doubt, send us the dimensions of your mill and let the McDanel engineers specify the exact materials needed.

CHICAGO VITREOUS ENAMEL PRODUCT CO. CICERO 50, ILLINOIS
exclusive representative for the enameling industry

McDANEL
REFRACTORY PORCELAIN CO.
BEAVER FALLS, PENNSYLVANIA

HAND ROLLED PORCELAIN GRINDING BALLS
STANDARD MILL LINING BRICK
SPECIAL MILL LINING SHAPES
METAL COVERED GRINDING JARS AND MILLS
MILL HEAD ASSEMBLIES
DOOR LINING BLOCKS
PORCELAIN GRINDING JARS AND MILLS

GETTING THE "BENDS"...

... from the BLENDS?

Our artist drew a diver . . . to help put this point across.

Diving — and then being properly decompressed on emerging — is a mighty ticklish business. Full of hazards!

There are plenty of "hazards" — and "pains", too — when an enameling shop tries to mix its own colors and strive for a perfect match.

That's a job for specialists — O. Hommel Company, the leading example.

Here's why it will pay you to buy ready-mixed colors from Hommel:

(1) Speed up your production;
(2) Avoid expensive experiments;
(3) Get the right match every time, on time;
(4) Keep up with your competitors.

Don't waste valuable production time and money "rolling your own".

Order matched colors from Hommel, world's largest supplier.

THE O. HOMMEL CO.
PITTSBURGH 30, PA.
Pacific Coast Agents
L. H. BUTCHER CO.

Laboratory Controlled Production of Ceramic Supplies

- FRIT for Steel, Cast Iron or Pottery
- CERAMIC COLORS
- CHEMICALS
- BRONZE POWDERS
- METAL POWDERS
- SUPPLIES
- EQUIPMENT

Our Technical Staff and Samples are available to you without obligation. Let us help you with your problems.

World's Most Complete Ceramic Supplier

THE Finish Line

THE PACKAGING AND SHIPPING PROBLEM as it pertains to the producers of porcelain enameled appliances and other porcelain enameled products was touched on in *The Finish Line* for July *finish*. This problem is one that is rapidly gaining the attention of *all* producers and of all key organization men, from top management to the packaging engineer and the shipping room foreman. And well it may, for millions of dollars are being lost annually by product manufacturers, component manufacturers and the carriers. It represents an irretrievable loss in dollars *and* in hard-to-get materials.

The finger of blame

Sometimes the blame for this loss can be properly placed; sometimes it cannot. Some damage is traceable to product design, some to improper production methods. In many cases it can be laid at the door of improper packaging methods or materials. Loading methods for transport are a factor. Last, but not least, there is the percentage of loss that can be traced to careless or improper handling by the carriers.

Much study has been given this serious dollar-eating problem by individual manufacturers, by associations, and by the carriers — and a great deal of data has been accumulated. This data, to a large extent, adds emphasis to the *problem*, and in some cases points to the source or sources of the difficulty.

One outlet for the carriers, who have been paying damage claims in steadily increasing amounts with the rapidly increasing volume of shipping in most metal products classifications, is to raise rates. Increased shipping rates, however, would not in themselves offer any permanent answer to the problem—to the loss of millions of dollars and thousands of valuable finished products.

What to do about it?

The only constructive answer must eventually come from continued research that will result in *definite recommendations* for corrective measures.

The Porcelain Enamel Institute has decided to sponsor just such a constructive program.

A plan is now rapidly taking shape which will serve to coordinate the work of *all* associations and groups whose members produce or use porcelain enameled products, for the benefit of *all* industry.

A committee is being formed with a nationally recognized authority on product manufacturing, packaging and shipping as its head, and with a key man from each of the cooperative associations to form the membership.

The cooperation of packaging associations and carrier groups is to be solicited.

Here is a genuinely *constructive* step forward — and one that after a reasonable length of time may be expected to reflect immeasurable benefit in good will and *dollars and cents* to every cooperating group.

Everyone should get on the band wagon and offer every possible help in a work that can mean so much to everyone interested in the production, packaging and safe delivery of porcelain enameled products.

Finish will help

This publication pledges to do everything within its power to further the cause by keeping readers posted on the progress of the work, and by keeping the problem before its industrial readership through the publication of important information and data on packaging and shipping as it becomes available.

We *have* the problem, whether we want it or not, so let's all work together to assist in gradually finding the answers and making them available to all who may logically benefit.

Dana Chase

EDITOR AND PUBLISHER

Your Requirements Determine the Temper of These Sheets

The enameling iron sheets you work are sure to fit your needs . . . if they're labeled "Inland." Here's why. Capable Inland metallurgists study your individual fabricating problems — then develop sheets *tempered* specifically for the drawing and forming requirements of your product. Before shipment, every lift of Inland enameling iron sheets is double-tested to check the degree of hardness and ductility your order calls for.

What's more, production of uniform quality steel is important at Inland. You can be sure that the Inland sheets you receive one year from now will be identical to the sheets you received yesterday. We are striving to increase production of these quality sheets in order to meet the unusual demand for them. INLAND STEEL CO., 38 S. Dearborn St., Chicago 3, Ill.

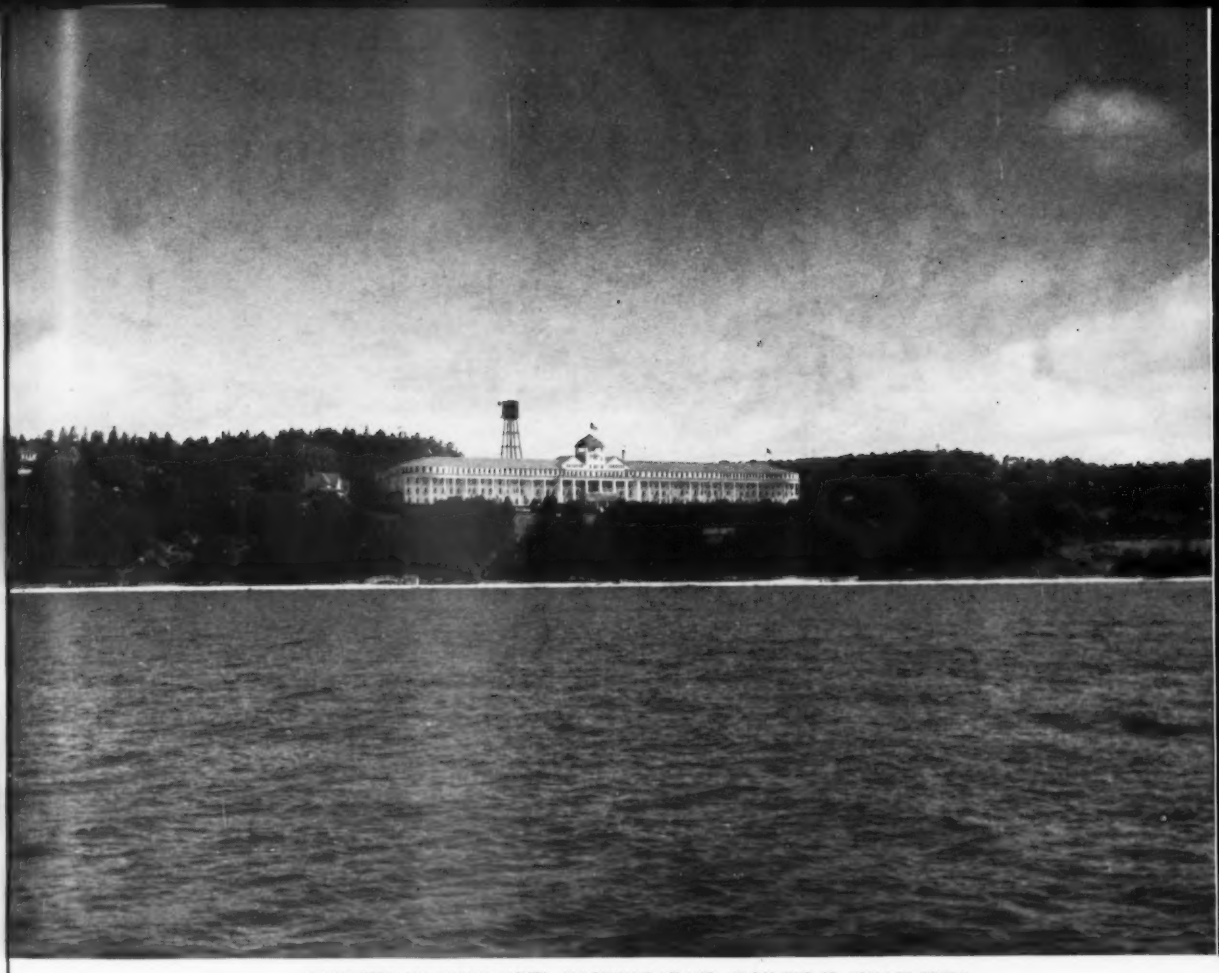
Sales Offices: Chicago, Davenport, Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, St. Paul.

INLAND STEEL

INLAND *Enameling Iron Sheets*

OTHER PRODUCTS: BARS • STRUCTURALS • PLATES • SHEETS • STRIP • TIN PLATE • PILING • FLOOR PLATE • RAILS • TRACK ACCESSORIES

SPECIAL SECTION



FINISHFOTO OF GRAND HOTEL, MACKINAC ISLAND, FROM THE ST. IGNACE FERRY.

AMERICAN WASHER AND IRONER MANUFACTURERS' ASSOCIATION

President: ROY A. BRADT, Maytag Company

Vice Presidents

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C. G. FRANTZ, Apex Electrical Manufacturing Co.

OSCAR A. LENNA, Blackstone Corporation

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DRYER DIVISION
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Edward C. Doll, Lovell; Eduard Geldhof, 1900

FOR the second consecutive year the American Washer and Ironer Manufacturers' Association took advantage of the opportunity to combine business with pleasure by holding its summer meeting at beautiful Grand Hotel, Mackinac Island, Michigan.

More than 300 representatives of member companies in AWIMA, the largest attendance in the industry's history, opened a 3-day meeting on Thursday morning, July 15. Members from 15 states and Canada participated. This year's meeting was graced by the attendance of a high percentage of the wives of participating members.

finishfoto

Apparently Terry Craig, of Mullins, Harry Smith, of Burgess-Norton, and C. C. Daily, of Firestone Ind. Prod., are awaiting an arrival by air.

Record-breaking postwar sales reported

Record-breaking postwar sales of washers, dryers and ironers and an unparalleled expansion program including more than a $10,000,000 outlay for enlarged and new plants were reported. Industry optimism is noted in the fact that a market potential far greater than any which has awaited the producers since the industry's founding almost forty years ago is envisioned.

Must reactivate distribution setup

Roy A. Bradt, president of the American Washer and Ironer Manufacturers' Association and vice president of the Maytag Company, Newton, Iowa, warned against over-confidence by manufacturers, distributors or retailers.

"The immense buying power of this country constitutes a hearty invitation to industry everywhere to redouble its production and sales programs to obtain its share, and more, of spendable income," he said. "Many manufacturers will lose out in the competitive process unless we all can reactivate a distribution and dealer setup which has become prosperity-flabby.

"The homemaker will have to be wooed from now on, and sometimes she is awfully coy."

Mr. Bradt declared that there are 10,000,000 more consumers now in the United States than there were in 1940, and that the number of births since 1941 "is almost 5,000,000 more than was expected on the basis of prewar rates,—and the house with youngsters is the ideal destination for our appliances."

The industry currently is turning out as many washers every *100 minutes* as it did in the *whole year* of 1909, when the first recorded output totalled 3,000 units. Washer sales in 1947 aggregated almost 4,000,000 units and production in the first half of 1948 was at an even higher rate.

Porcelain enamel featured on Associates program

Thursday afternoon's program was sponsored by the Associate membership, comprising companies supplying materials and components to the industry. Chairman of the Associates committee is H. S. Smith, vice president of Burgess-Norton Manufacturing Company, Geneva, Illinois.

Following the introduction of six new Associate members — Chicago Vitreous Enamel Product Co., Nagel-Chase Manufacturing Co., Meyercord Co., and Sterling Bolt Co., all of Chicago; Cook Paint and Varnish Co., Kansas City, Mo.; and the Geauga Industries Co., Middlefield, Ohio — Mr. Smith introduced Dr. LeVan Griffis, chairman, Department of Mechanics, Armour Research Foundation and Illinois Institute of Technology, who spoke on "Application of Research in Mechanical Industry."

This was followed by a demonstration and running comment, "The What of Porcelain Enamel," by Dr. M. E. Bahnsen, Ferro Enamel Corporation, and a presentation of the material's important physical characteristics by Dana Chase, editor of *finish*.

Closing feature of the program

Motorized conveyances are left behind on arrival at Mackinac Island.

finishfoto

was a sound film in technicolor, "The Unfinished Rainbow," presented by the Aluminum Company of America.

In his talk, Dr. Griffis outlined the principles involved in research—both basic and commercial—and presented case histories involving the practical application of research in industry.

AWIMA Committees and Committee Chairmen

Trade Practices Committee
H. P. Nelligan, Easy
Engineering & Research Committee
G. I. Cockerill, Apex
Sales & Advertising Committee
M. A. Toussaint, Barlow & Seelig
Market Research Committee
J. A. Drake, Norge
Traffic Committee
R. H. Thompson, Maytag
Parts & Service Committee
C. L. Atkinson, Easy
Associates Committee
H. S. Smith, Burgess-Norton
Finance & Budget Committee
B. J. Hank, Conlon Div.
Government Committee
Wm. S. Hammersley, 1900
Membership Committee
Louis C. Upton, 1900

Dr. Bahnsen employed an operating exhibit including a crucible for melting raw materials, a furnace for the firing of porcelain enamel, and other equipment for the intermediate steps to provide a complete demonstration of the smelting and quenching of the frit and the milling, dipping and firing of the porcelain enamel. With this demonstration he gave a running commentary which dramatically explained equipment, methods and processes in the manufacture of both the raw material and the finished porcelain enameled product.

Although porcelain enamel has been universally used for washing machine components for a number of years, it was evident from the close attention given this demonstration that chief executives and key men of the manufacturing companies had not been given an opportunity previously to become thoroughly familiar with the details pertaining to the manufacture and characteristics of this lifetime finish.

Durable—flexible

In outlining the physical properties of porcelain enamel, Dana Chase stressed the versatility of porcelain enamel, the variation in characteristics of the final products, and explained how even within the washer-ironer industry various types of enamels are required. For instance, for washer or ironer tops, where they are designed as a working surface for possible installation in the kitchen, acid resistance may be an important requirement. In contrast, the washer tub requires special attention to characteristics of alkali resistance. Special attention has been given to this problem in relation to the interiors of automatic washers, where, in most instances, white cover coats are not employed.

Mr. Chase used an enameled 3/8" steel plate and wooden mallet to demonstrate the durability of porcelain enamel when applied to a rigid surface, where deformation of the metal base is impossible. In contrast, flexibility was dramatically presented by unrolling a coil of Mirawal, the thinly coated 32 gauge porcelain-on-steel "wallpaper."

Keen interest in porcelain enamel among executives was evidenced by the spirited discussion following this part of the program.

The sound-color movie, presenting the story of aluminum and Alcoa, featured professional talent and cleverly presented the "life story" of this important metal.

A day of recreation

The idea of visiting so ideal a spot from the standpoint of recreational facilities for nothing but business would appeal to but few. The program committee was wise in setting aside a full day—Friday—for the pleasure of the members and guests. Recreation included golf tournaments, swimming, boating, horseback riding, such indoor sports as poker and bridge, and just plain relaxation.

The women were not overlooked in the arrangements. The array of prizes for golf and bridge, as well as many door prizes, was an "eye-knocker." Such items as electric blankets, radio clocks, steam irons, travel clocks, food mixers, toasters, waffle irons, linens, perfumes, evening bags, ice buckets, picnic baskets, billfolds, and serving trays were among the many.

While small appliances formed a major part of the men's prizes also, to these were added fishing rods, reels, woolen sport shirts and many such items that are always acceptable.

Back to business

Saturday's session included the formal association business and reports of the various committee chairmen on progress in their respective fields.

Tribute was paid to two men who have passed away since the last regular meeting of the Association—Edward N. Hurley, Jr., chairman of the Board of Thor Corporation, and past president of AWIMA, and Les Moffatt, former editor of "Electrical Merchandising."

General Committee on Arrangements for AWIMA meeting

Harry S. Smith, chairman, Burgess-Norton Mfg. Co.
Fred P. Stratton, Briggs & Stratton Corp.
George W. Green, B. F. Goodrich Company
T. C. Craig, Mullins Manufacturing Corp.
O. L. Earl, Acme Aluminum Foundry Co.
C. C. Daily, Firestone Industrial Products Co.
Harry C. Kunkelman, Bliss & Laughlin, Inc.
N. L. Etten, Chamberlain Corporation
Carl L. Huff, ex-officio, former chairman of the Associates Committee, Bliss & Laughlin, Inc.

Shortages vs. increased demand

In again referring to record-break-

to Page 28 →

our Wirebound Crates even benefit our dealers

REPORTS THE BEAM CORP., WEBSTER CITY, IOWA

1. Stored flat for shipping room space economy, Wirebounds are quickly and easily assembled.

2. Two men lift the scooter and lower it into place in the assembled Wirebound Crate.

3. Packed, the scooter rests snugly in specially notched cross pieces nailed to the bottom of the crate.

4. Packaging is complete when the top is folded into position and secured by twisting the four binding wires.

"Dealer reactions prove Wirebounds the ideal crate for the "Doodle Bug" motor scooter," according to G. P. Castner, Vice President and General Manager of the Beam Manufacturing Company of Webster City, Iowa. "Merchandise arrives at the point of destination ready for immediate assembly and display on the sales floor."

Easily stored in a relatively small space, Wirebounds afford many economies in the Beam shipping room. Speed of packing operations, ease of handling and low initial cost all contribute to an efficient packaging procedure.

Because they combine the strength of steel with thinner wood, Wirebound crates also produce a considerable reduction in actual freight costs. This reduction, plus complete protection for merchandise in transit has enabled Wirebounds to earn invaluable dealer good will for the Beam Manufacturing Company.

Wirebounds can be designed to carry almost any product—regardless of size or shape—safely, efficiently and at lower cost. For complete information or a call by a specially trained Wirebound Sales Engineer, fill out and mail the coupon, *today!*

MAIL THIS COUPON!

WIREBOUND BOX MFG. ASS'N.
Room 1832, Borland Building, Chicago 3

☐ SEND COMPLETE LITERATURE ☐ SEND A SALES ENGINEER

NAME _____ POSITION _____

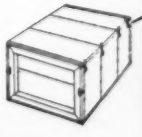
FIRM NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

PRODUCT _____

Plants located to serve all manufacturing centers.



Wirebound
BOXES & CRATES

The ferry was too slow. These men took a speed boat in order to beat the crowd.

Chicago Mill & Lumber's Whiton & Glascock, with R. Shanks, Appliance Mfg.

Breckenridge, Automatic; Gowdy, P&G; Dyer, Easy; Cockerill, Apex.

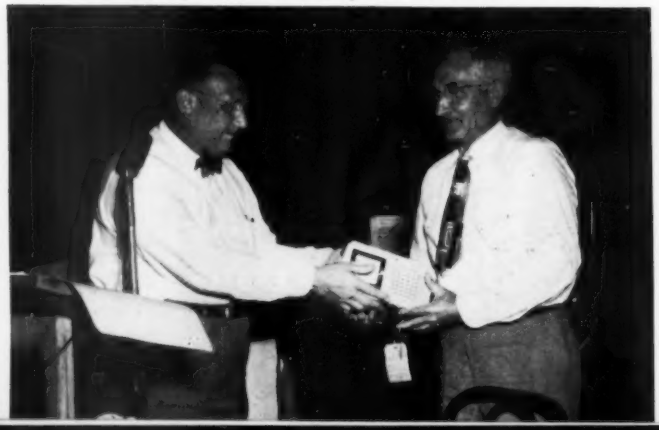
SNAPSHOTS AT THW

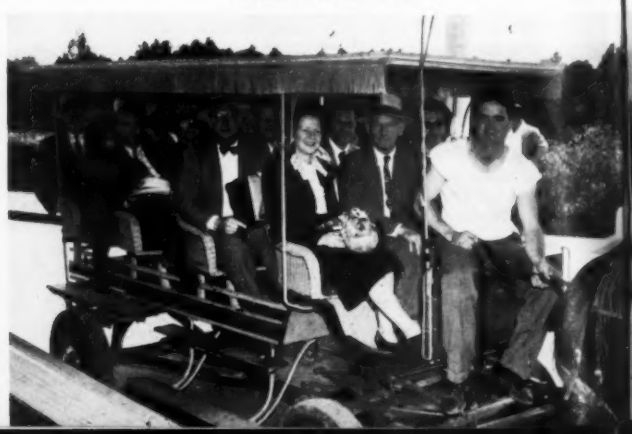
Relaxation for Decker, Chamberlain Corp., and Geldhof, 1900.

Gage Campbell, Beatty Bros., Canada; and Cal Roll. Barlow & Seelig.

Bliss & Laughlin's Kunkelman hands first prize for low gross to Golfer Geo. Green, of B. F. Goodrich.

Gin rummy "feud" between AllianceWare's Brett and Blackstone's Wicht.





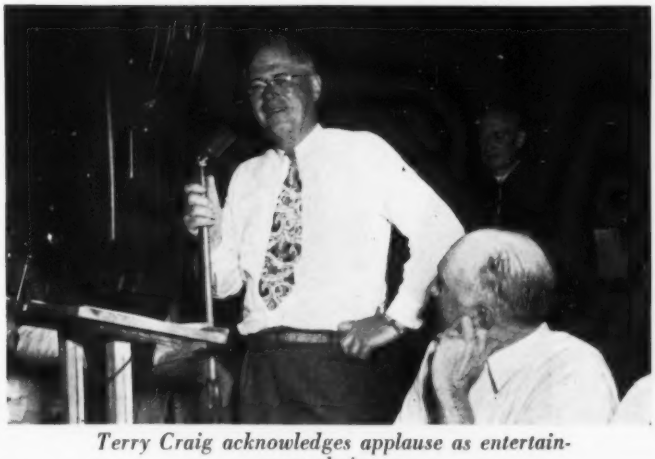
Jack F. Ward and John W. Ward, both of Dexter, oblige the cameraman.

McKenney, Apex, with D. B. and A. B. Anderson, Nagel-Chase.

THWIMA MEETING

finishfotos

Solid comfort. Spaulding, Bliss & Laughlin; Wilder, Stewart Die Castings.



Terry Craig acknowledges applause as entertainment chairman.

Program Chairman Smith, Burgess-Norton, with publicity man, Shaw.

"Song fest" with Burke, Inland Steel, and Callahan & Franks, Altorfer.

Don Springer, of Cook Paint & Varnish, with Earl Bremer, of Westinghouse Electric.

A small group of washer-ironer-dryer men ready to head for home-sweet-home.

→ *from Page 22*

ing production, President Bradt pointed out that "there has never been a day since World War II that one sector or another of our membership has not been beset by a shortage of parts, or materials, or labor, or a combination of all three.

"One manufacturer recently could not turn out any washers for a month, because of his inability to obtain tubs," said Mr. Bradt. "Not long before, another member received a shipment of 2,000 wringers without drainboards, and therefore useless to him. Still another company announced within a fortnight that it would be compelled to keep its dealers on allocations throughout 1948."

In contrast to this, Mr. Bradt said, "About 2,500,000 consumers have gone up into the $5,000-and-higher bracket in a year. The families with $3,000 to $5,000 incomes have increased 500,000 in a year, to a total of 12,000,000. Ten years ago we had only 1,800,000 of them. Last year we had 9,000,000 families with incomes of $5,000 or more. Ten years ago they numbered only 800,000. About one-half of all our families increased their money income in 1947. More than a fourth of all family units expect to be making more money a year from now.

"Disposable personal income, money available for spending after personal taxes, was at the annual rate of $186,000,000,000 in the first quarter of this year, a new high. It is estimated to be near $190,000,000,000 now and will be close to $200,000,000,000 in the fourth quarter, according to today's estimates. In 1947 the annual rate was $176,000,000,000."

Continuing along the statistical line was a report from J. A. Drake, director of research, Norge Division, Borg-Warner Corp., and chairman of the Association's new market research committee. It was indicated that 75-80 per cent of the industry's production soon will be reported according to the McCarthy trading area system. The Association last January discontinued reporting sales by states in favor of the more intensive method of analyzing territories which involves more than 600 retail zones.

finishfotos

Conlon-Moore's C. J. (Red) Campbell, chief entertainer.

Distributor-dealer clinics

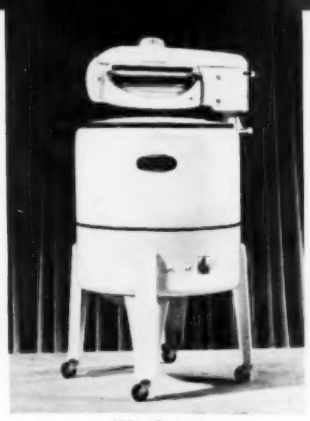
A cross-country series of distributor-dealer clinics to perfect plans for redoubled promotion of household ironers was proposed in a report by the ironer committee, of which I. N. Merritt, vice president and general manager, Conlon Division, Conlon-Moore Corporation, is chairman. He reported household ironers selling this year at the rate of one to every eight washers, the best ratio in the industry's history. Ironer satura-

to Page 30 →

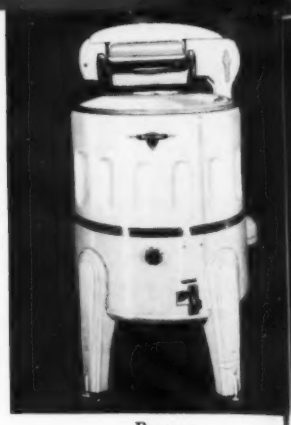
Bearded "prexies" at the banquet speakers' table at AWIMA summer meeting.

Easy

Apex



Blackstone



Barton

General Electric

Frigidaire

→ *from Page 28*

tion of wired homes is 7.3 per cent, and the manufacturers' first objective is 10 per cent adoption, the acceptance point at which home appliances traditionally begin to move in large volume.

A test city-wide promotion of ironers by individual manufacturers, planned for Chicago in October, would be followed by a nation-wide drive in the spring of 1949, according to recommendations by the committee. This also would promote the idea of full mechanization of home laundering, by use of the washer, dryer and ironer.

E. L. Farquharson, sales manager of the home laundry division, Landers, Frary & Clark, chairman of the Association's conventional washer division, joined in recommending a nation-wide promotion event on behalf of the organization's three products.

The plumbing problem— standardization of codes

Use of a comparator or "yardstick" household washer, by which industry members can gauge the performance of their own products, has won general acceptance since its introduction, according to G. I. Cockerill, Apex Electrical Manufacturing Co., chairman of the AWIMA engineering and research committee. He cited one company that had run more than 700 soil removal or washability tests, involving more than 7,000 test soilcloths, within a year.

To *finish*, Mr. Cockerill said, "One of the committee's most important projects at the present time is in connection with general plumbing problems—specifically in the standardization of codes, the establishment of uniformity, etc.

"We have also been handed the task of dealing with the bacteriological aspect of domestic as well as public use washers. We hope to collaborate on these problems with the National Sanitation Foundation on an industry basis, since this nonprofit organization seems to be in an excellent position to assist us in our work of sanitation."

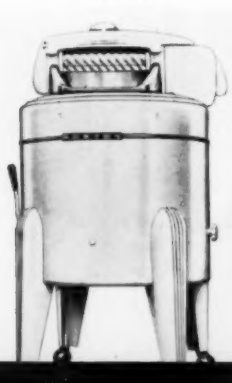
Successor to the clothes line

Howell G. Evans, vice president, Hamilton Manufacturing Co., and chairman of the Association's dryer division committee, referred to the automatic tumbler dryers as the "successor to the clothes line." Reference was made to the need for codified installation specifications for both gas and electric models. Evans recommended a study of installation practices in various communities as an aid in industry-wide educational

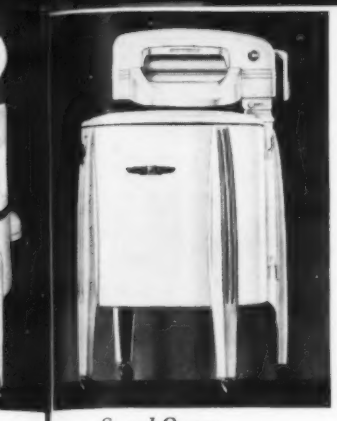
Whirlpool

One Minute

Horton



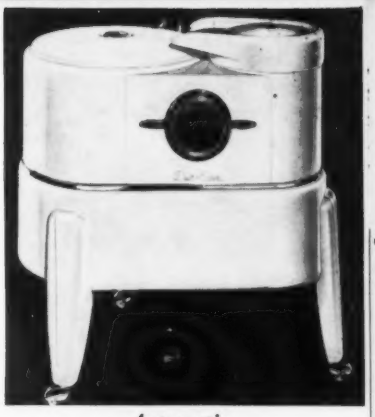
Woman's Friend



Speed Queen

Launderall

Hotpoint



Automatic

and promotional work. "The trade and consumers alike still do not understand as they should what to expect of an automatic dryer, how to use it, and how it should be installed for utmost satisfactory results," Mr. Evans said.

Keep the old ones running

Despite record-breaking sales of new laundering appliances, millions of old prewar models still are remaining in American homes and must be kept in use by the industry's sale of replacement parts and repairs, says a report by the parts service managers' committee, headed by C. L. Atkinson, Jr., sales service manager of Easy Washing Machine Corp.

Household washers in use at the beginning of 1948 were estimated to aggregate 21,987,000. Sales since the war exceed 8,000,000. Sales in the first six months of this year totalled more than 2,000,000. Nevertheless, the industry's sales of parts to dealers in 1947 showed an increase of 25 per cent over 1946, and 1948 will top 1947 by 20-25 per cent, according to the committee report.

The committee warned against the use of non-genuine repair parts, not made to strict manufacturing standards. The use of these, it declared, frequently leads to servicing operations which are expensive to the appliance owner. Several million dollars' worth of "gyp" parts were sold in 1947 alone, it was declared.

$3,500,000 saved by traffic committee

Roy H. Thompson, general traffic manager of Maytag Company, and chairman of the AWIMA traffic committee, reported freight rate adjustments obtained by his committee totalling a saving to Association members of more than $3,500,000 in 1947 alone. *(This will be of interest to the porcelain enameling industry, whose own association — Porcelain Enamel Institute — is establishing a coordinating committee on packaging and shipping to include* all *porcelain enameled products.)*

111 materials must be carried

For his group, Associates Chairman Harry S. Smith, vice president of Burgess-Norton Manufacturing Company, said it is essential for the suppliers to bring together materials from 26 states and 24 foreign countries for the production of more than 500 materials and parts which the appliance makers require. Before an electric motor can be made, 111 materials must be carried 250,000 miles by land and sea, even on elephants and camel, from the four quarters of the globe. →

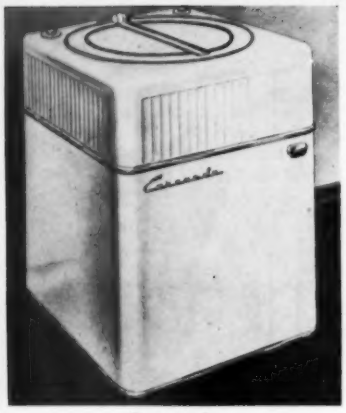
Dexter
Bendix

Young

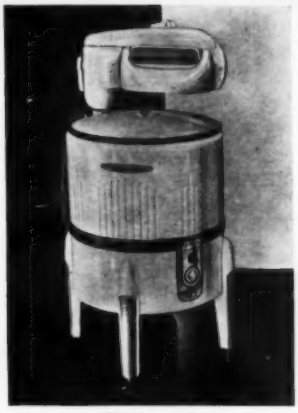
Voss

Conlon

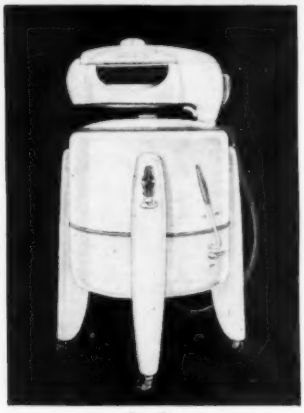
Norge



Coronado



Universal



Inglis

ABC-O-Matic

Growth was further indicated by Chairman Smith through reference to a total of 456 workers employed by 61 companies making hand-operated washers in 1880. The industry's whole year's payroll at that time was a little more than $175,000.

Mr. Smith reported that 5,000 copies of the Forum discussion from last year's meeting *(round table discussion by Mateer, Meyer and Chase)* had been distributed to meet requests.

Next meeting in Chicago

The American Washer and Ironer Manufacturers' Association annual meeting has been scheduled for January, 1949, at the Morrison Hotel, Chicago. Exact dates will be announced later.

Comments from home laundry equipment manufacturers

Editor's Note:

Finish **invited executives of producing companies to comment on the future of the washer-ironer-dryer industry and invited pertinent comments pertaining to the use of porcelain enamel on industry products. The following are a few of the early replies to this invitation.**

Bright laundry industry outlook

H. A. Sperlich, president, The Ironrite Ironer Company—

"The outlook for the future of the home laundry equipment industry and ironers . . . is especially bright. . . . We are planning increased budgets for our advertising and sales promotion, and are conditioning our sales department and distributors and dealers for the economic trends which may mean more aggressive and vigorous selling in the future. Our production, which is still going up, month by month, is governed only by the availability of raw materials, chiefly steel. We face the future with the greatest confidence."

Trend to more porcelain enamel

J. M. Wicht, vice president, Blackstone Corporation —

"Some of these (Blackstone) units are furnished in porcelain, as you can appreciate, the tubs and ironer tops, while other portions are in enamel, although there are contemplations underway toward switching to porcelain to an even greater extent. The latter intention is partially effected by the design which is also being considered . . . "

Tremendous ironer market ahead

H. A. Bumby, president, Barlow & Seelig Mfg. Co. —

"With only an 8½% saturation at the present time, we anticipate a tremendous development of the ironer market during the next few years. With proper development, this ironer market can foreseeably attain a volume of sales equal to the current washer demand."

Trail blazers in industry

I. N. Merritt, Conlon Division of Conlon-Moore Corporation —

"As you are familiar, I am Chairman of the Ironer Products Division of the Association, and I am firmly convinced that the greatest potential growth lies in the ironing machine division of the industry, because of the low saturation point that exists at present.

"This Committee has been very active, and is recommending to the Association a program of standardization, namely advertising, slogan contests, etc. that should expand sales and enhance interest in ironing machine equipment. →

Blackstone

Duchess

Maytag

Hamilton

The lady is unhappy. She just dragged a basket of clothes across her new ironer top. There was a tiny brass nail in the basket. It gouged a wide scratch through the finish right down to the steel. The ironer will never again look new.

If this top had been finished in porcelain enamel — the lifetime finish — there wouldn't be a bit of damage. It would stand this and much more abuse. Porcelain enamel doesn't yellow with age or with heat. A hot flat iron won't hurt it. It is easily kept clean.

Our former ironing machine customers and others in the field all say, "When enameling stock is available, we plan to use porcelain enamel on our ironer tops."

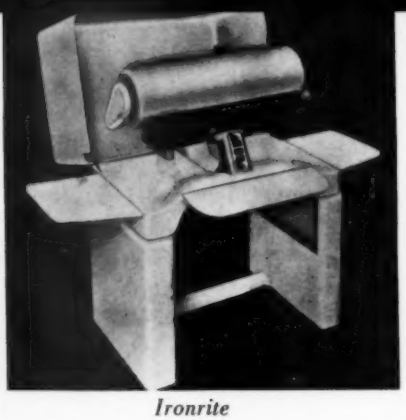
Maybe now is the proper time to plan for such an improvement. If there is any planning to be done, we should be glad to lend you what assistance we can, based on long experience manufacturing these tops.

Plan for the lifetime finish.

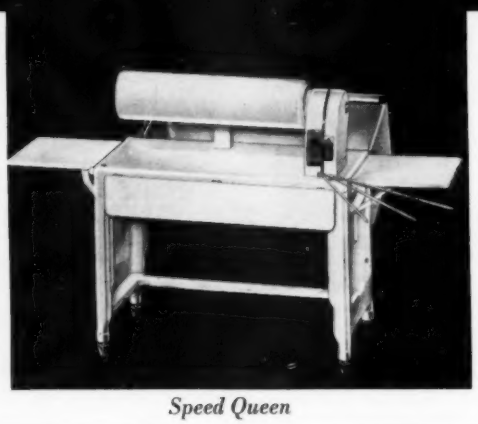
Plan... for the Lifetime Finish

VITREOUS STEEL PRODUCTS CO.

BOX 1791, CLEVELAND 5, OHIO *(Factory at Nappanee, Ind.)*



Ironrite



Speed Queen

Conlon

Hotpoint

Armstrong

"I came into the washing machine industry twenty-two years ago when copper tubs were used, along with aluminum, nickeloid and other types of material in the fabrication of tubs. When one, in retrospect, reviews the progress that has been made since the introduction of the enamelled tub, that was almost forced down the throats of the manufacturers, to use the vernacular, which it really was, to me the credit of 75% or 80% of the designing possibilities since that date is due to the use of porcelain enamel products.

"When Terry Craig and Fred Buck used to beat our doors down to get us started on enamel tubs, they were really trail blazers in an industry that has reached the proportion attained by the washing machine and ironing machine industry.

"It certainly has added life to washers and ironers to have the easy, rapid cleaning feature that comes with the use of vitreous enamelled products."

Spin basket of porcelain enamel

George C. Howell, Jr., Domestic Division, Nineteen Hundred Corporation —

"As do the rest of our products, these machines have tubs of steel covered with porcelain enamel. The automatic washer shown has both spin basket and tub of porcelain enamel."

No substitute for porcelain enamel

E. L. Farquharson, sales manager, Home Laundry Division, Landers Frary & Clark —

"In spite of the fact that practically everybody in the washer industry has made at least a portion of their production with sheet aluminum tubs, we have stuck 100% to steel tubs with a porcelain finish.

"In our estimation there is no substitute for a porcelain enamel washer tub, although the procuring of suitable enameling steel to keep our production lines running is a difficult problem. . . . The ironer shown on the attached photograph has a porcelain enamel top on the cover."

Transition to enameled tub

E. F. Voss, Voss Bros. Mfg. Co. —

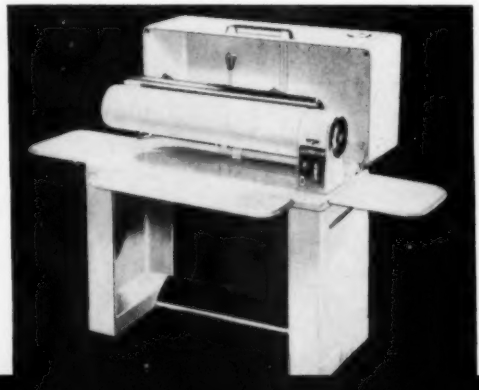
"You will notice that we use a corrugated, porcelain enamel tub finished in white to correspond with the entire finish of the machine.

"Over a long period of years our company has seen the transition from the old wood tub to the copper tub and then to the porcelain enamel tub,

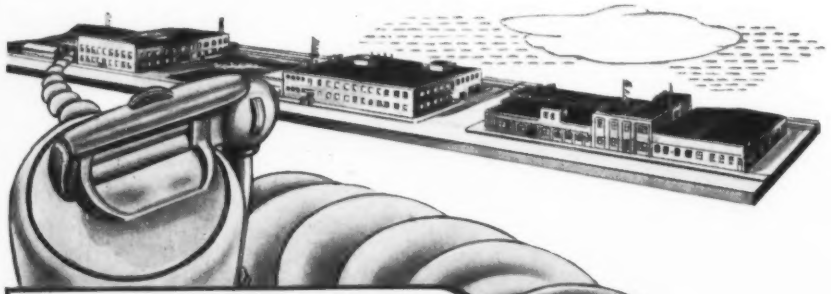
to Page 70 →

Apex

Frigidaire



Horton



THEY LOOK TO NEW MONARCH

FOR QUALITY LIDS AND OTHER WASHING MACHINE PARTS

Twelve of the large, nationally known washing machine manufacturers are using New Monarch lids and other stampings. Their selection is due to the uniformly high quality and precision craftsmanship which go into all New Monarch stampings and which have enabled them, throughout the years, to hold their most critical customers.

New Monarch will aid you, too, in the production of better and finer steel products.

New Monarch's service includes: Engineering, Planning and Developing your ideas, Making Dies, Jigs, Fixtures and Stampings, Complete Assembly and Finishing, Painting, Packing and Shipping.

MONARCH QUALITY

When you think of Stampings, think of

NEW MONARCH MACHINE & STAMPING CO.

406 S.W. NINTH STREET — DES MOINES 9, IOWA

Legs Should Be Beautiful - Even On Washing Machines

To meet the requirements of present day merchandising, even the legs of washing machines must possess Beauty, Uniformity and Eye Appeal. And that's the rule under which New Monarch's skilled craftsmen produce Specially Designed Leg Stampings for twelve nationally known washing machine manufacturers.

New Monarch, after 36 years experience, is today aiding manufacturers everywhere by producing for them, in truly modern design, dies and stampings of finest quality and by offering a complete service including also Finishing, Assembly and Packing.

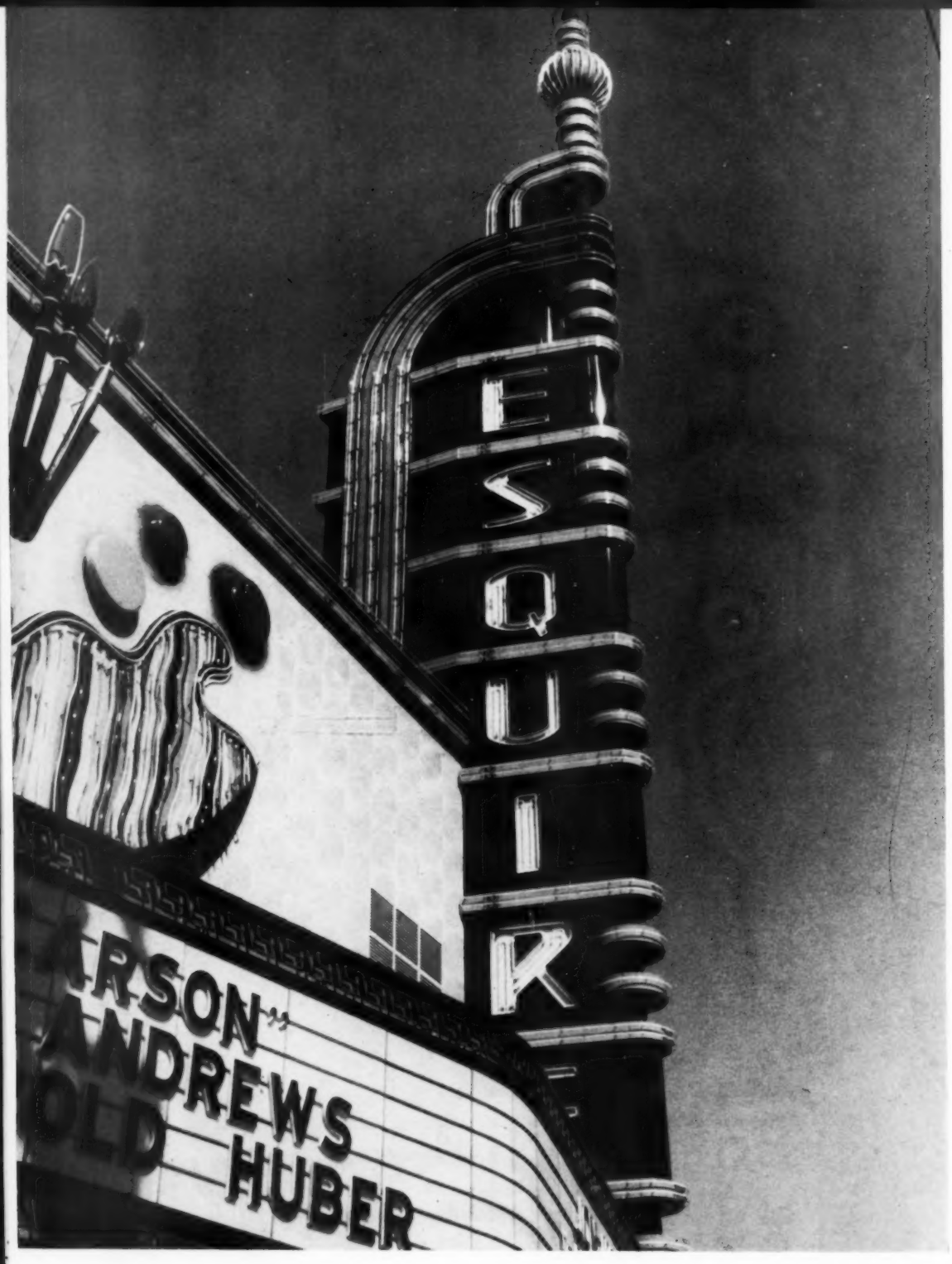
Write today for information. If you have your own dies and materials, most of our services are available now. Add our experience, facilities and skill to your own—it always pays.

MONARCH QUALITY

When you think of Stampings, think of

NEW MONARCH MACHINE & STAMPING CO.

406 S.W. NINTH STREET — DES MOINES 9, IOWA



The Esquire Theatre

DALLAS • TEXAS

ARCHITECTS • Pettigrew and Worley.

ARCHITECTURAL PORCELAIN ENAMEL • McMath-Axilrod Corp.

Unusual design, color and permanence in a motion picture theatre

architects and porcelain enamelers collaborate to build a show place of distinction

ONE of the most attractive neighborhood theatres in the Southwest is the recently remodeled Esquire Theatre in Dallas, Texas. The new exterior of this movie house was constructed almost entirely with architectural porcelain enamel by McMath-Axilrod Corporation, of Dallas. Pettigrew and Worley were the architects for the outstanding installation.

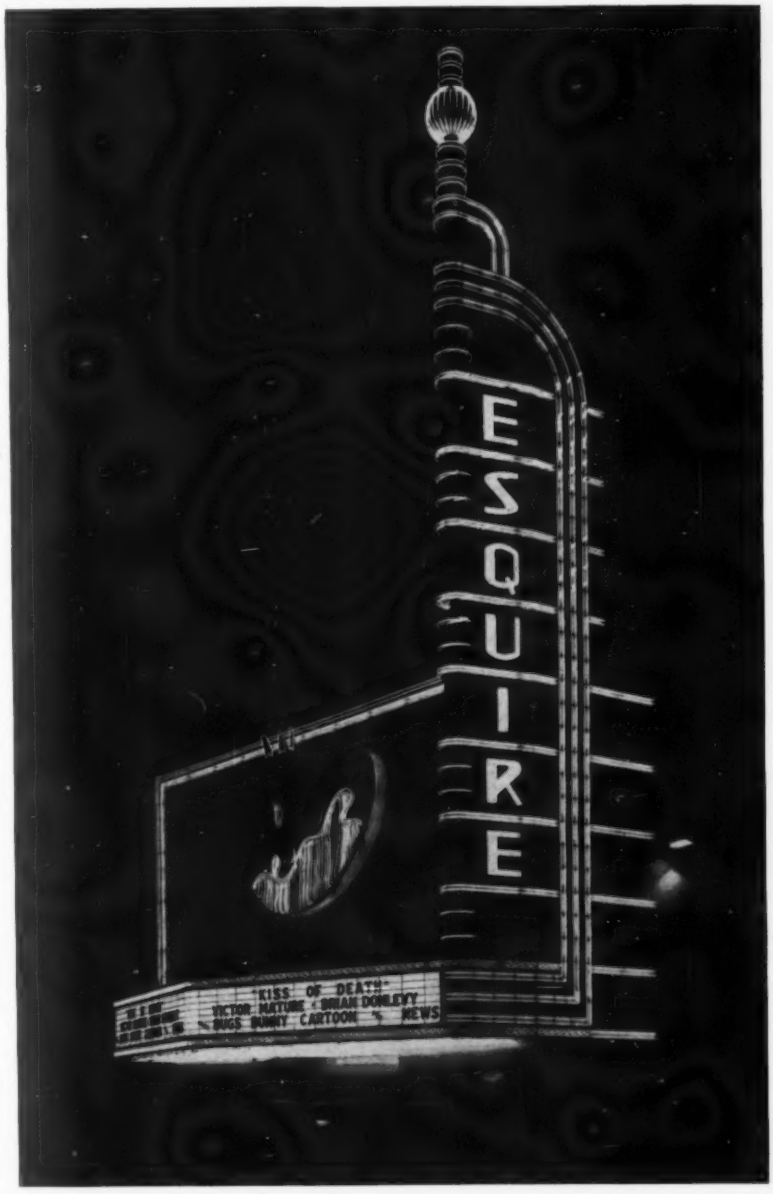
The building face above the marquee is of 21 inch square fabricated porcelain enamel panels. To avoid the starkness and monotony of such a large area, the individual panels were screen processed to produce a feeling of texture. The result is an unusual background for a colossal artist's palette superimposed over the building face. The artist's palette and protruding brushes are of porcelain enamel. They were conceived as a motif to suggest the affiliation of the cinema with the other arts, as well as to provide a colorful and eye attracting display.

The soffit of the marquee is of all-ivory porcelain enamel, illuminated by 800 feet of white and rose luminous tubing.

The vertical name sign projects 46 feet 2 inches above the building parapet without any visible means of support, and 90 feet above the street level. It is illuminated with 2200 feet of luminous tubing. One of the outstanding features of the project is the unification or tying-in of the vertical sign with the attraction board. The three border channels, which run down the back of the vertical sign and into the interchangeable letter space of the attraction board, are equipped with neon light which has a running effect, proceeding from the top of the sign down the back into the lighted area of the board.

The reading material on the marquee is obtained through the use of 12 inch interchangeable letters silhouetted by approximately 600 feet of luminous tubing behind flashed opal glass.

Night view of the Esquire Theatre which is one of the most outstanding in the Southwest.



This mill room is designed

to minimize materials handling

a properly designed and equipped mill room can save many manhours of labor—and produce better milled enamel

THE accompanying drawing shows the essential details of a comparatively new mill room at the Vitreous Steel Products Company plant in Nappanee, Indiana. The mill room is designed to service a continuous-furnace porcelain enameling plant in which a wide variety of fabricated steel parts are porcelain enameled. A brief description of the flow through the mill room is as follows.

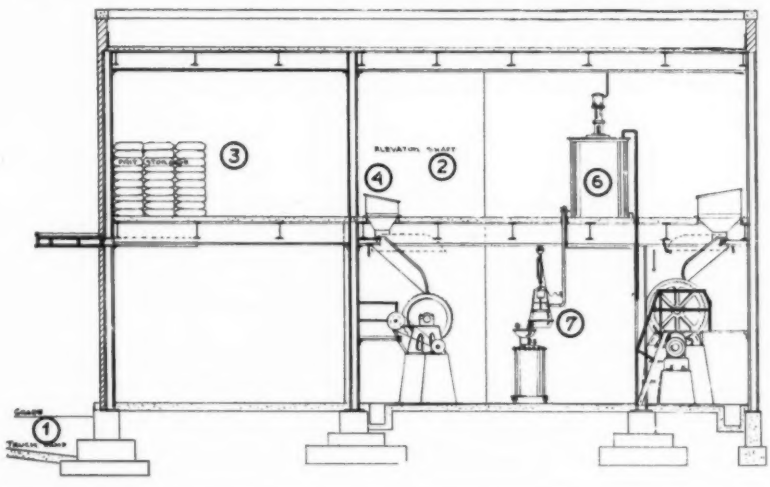
Frit and other raw materials are unloaded at truck ramp (1), where it is loaded into an elevator (2) and transported to second floor storage (3). All raw materials are loaded into mills from second floor hoppers (4).

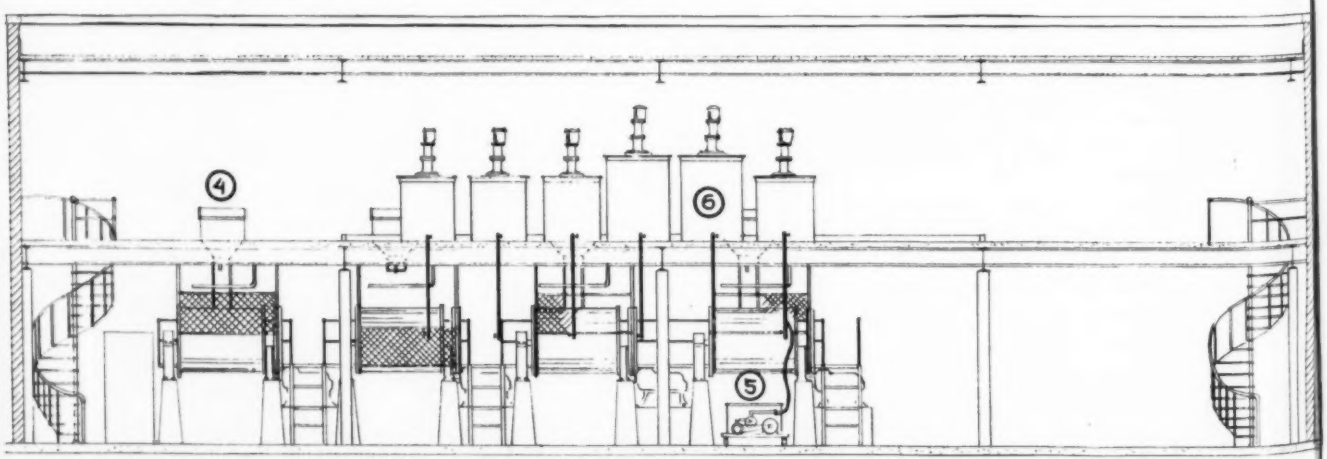
Following grinding, the slip is unloaded from the mill by gravity into pump tank (5), from which it is pumped into second floor storage tanks (6). As enamel is needed, it flows by gravity from the storage tanks, through a centrifugal sieve and magnetic separator, into pressure tanks (7). As can be seen, the location of equipment is such that minimum handling is required.

Of interest to porcelain enamelers is the fact that all items of sheet steel equipment through which either dry or wet materials pass are coated with ground coat porcelain enamel. This includes the hopper and chutes for loading the mills, the overhead wet storage tanks, and the unloading supply tank. This eliminates the possibility of contaminating materials and makes for ease in cleaning of the equipment items. Portable ground coat dip tanks are also loaded in this mill room, and these also are porcelain enameled.

While overhead storage of raw materials and enamel slip is not new, we believe that this drawing will serve as a suggestion to plants which are not equipped in this manner, and should aid in the general improvement of mill room facilities.

Although Vitreous Steel Products operates an experimental laboratory in another section of the plant, a small but adequately equipped enamel control laboratory is located on the second floor of the mill room section to facilitate convenient and close control of all enamel preparation.





Left: Equipment for unloading mills b gravity and pumping liquid enamel t overhead storage tanks. Below: Typic agitator storage tank, located on secon floor, from which liquid enamel is u loaded by gravity.

finishfotos

check your mill room with this plan and equipment now
modernization may pay rich dividends in the future

Right: Enamel control laboratory on second floor of millroom. Below: Frit and chemicals are loaded into mills from overhead storage through porcelain enameled chutes.

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Porcelain enamel institute forum

tenth annual forum for plant men to be held at University of Illinois

THE annual Porcelain Enamel Institute Forum for plant men, which is held alternately at Ohio State and Illinois universities, is scheduled this year for October 13, 14 and 15, at the University of Illinois, Urbana, Illinois.

This educational service, sponsored by the Porcelain Enamel Institute, is dedicated to improving the materials, processes and controls involved in the fabrication, metal preparation and finishing of porcelain enameled products. The program prepared for this year's meeting is designed to contribute to higher product quality, increased operating efficiency, and to wider markets for all porcelain enameled products.

As is evident from the program, the papers will be presented by practical men selected for their knowledge, ability and authority in connection with the subjects covered. It is felt that every key plant man in the industry will be interested in taking advantage of this opportunity to assimilate valuable information on a broad group of important subjects in a short three-day program.

FORUM INFORMATION

Attendance: Participation at the Forum is open to all individuals connected with or interested in the porcelain enameling industry.

Registration will be conducted in the Ceramic Building. The fee is $15 for the 3-day session or any part thereof, except for students and faculty. Registration proceeds will be used to defray Forum expense and to publish the Forum proceedings. Copy of complete Forum proceedings will be sent to all paid registrants.

Social: Group luncheons will be arranged. A banquet on Thursday evening, October 14, will be at the Urbana-Lincoln Hotel.

Early registration with the Institute for Forum sessions and hotel accommodations is urged.

The Executive Committee of the Porcelain Enamel Institute has ruled there are to be no forms of commercialism and absolutely no company entertainment.

THE PROGRAM

Wednesday Morning, October 13

9:00 Registration

10:30 Meeting of Committees
(Includes meeting of Coordinating Committee of Enamelers Clubs)

Wednesday Afternoon, October 13

Presiding
Dr. A. I. Andrews
Head of Dept. of Ceramic Engineering
University of Illinois

1:30 Address of Welcome.....M. L. Enger, Dean, College of Engineering, University of Illinois
Response.....C. D. Clawson, President, Ferro Enamel Corp.; President, Porcelain Enamel Institute

2:00 Panel Discussion: Titanium Enamels

1. Review of Titanium Enamel Development and Discussion of its General Properties....D. R. Goetchius, Ferro Enamel Corp.
2. Application of Titanium Enamels....Harold Wilson, Vitreous Steel Products Co.

Thursday Morning, October 14

Presiding
Dr. J. J. Canfield
Supervising Metallurgist, Research Laboratories
Armco Steel Corporation

9:30 Panel Discussion: Application of Cover Coats Directly on Steel

1. Special Steels and Preparation for Enameling .....Frank R. Porter, Ceramic Engineer, Inland Steel Co.
2. 1500°F. Type of Enamels
   (a) Shop Processing of Titanium Enamels Direct to Titanium Steel.....John L. Lannan, Westinghouse Electric Corporation
   (b) Pickle and Millroom Practice and Procedure for Application of Titanium Enamel Direct to Titanium Steels.....John C. Swartz, Westinghouse Electric Corporation
   (c) Zirconium and Other Types..M. E. McHardy, Hussmann Refrigerator Co.
3. 1300°F Enamels, One and Two Coats....B. D. Bruce, Chicago Vitreous Enamel Product Co.

Thursday Afternoon, October 14

Presiding
Dana Chase
Editor and Publisher
finish

1:30 Quality Control of Manufactured Products through Incentives.....Waldo W. Higgins, Chief Engineer, A. O. Smith Corp., Kankakee Works
Control of Liquid and Airborne Wastes from Porcelain Enameling....H. S. Kline, Industrial Hygiene Engineer, Frigidaire Division, General Motors Corp.
Personnel Safety and Health Hazards in the Enamel Plant.....Russell Frank, Ferro Enamel Corp.
Budgeting Expenses in the Enamel Plant .....C. S. Pearce, Secretary, American Ceramic Society

7:00 Annual Forum Banquet
Urbana-Lincoln Hotel

Friday Morning, October 15

Presiding
Dr. E. E. Marbaker, Senior Fellow
Mellon Institute of Industrial Research for
The O. Hommel Company

9:30 Design, Construction & Maintenance of Burning Tool Equipment.....A. Rasmussen, The Fahralloy Company
Survey of Drying Practices in the Porcelain Enamel Industry.....George N. Tuttle, Ceramic Engineer, Benjamin Electric Mfg. Company
Common Defects in Porcelain Enamels Occurring in Processing and How to Repair Them for the Finish Line.....John L. McLaughlin, Chicago Vitreous Enamel Prod. Co.
Application of Ceramic Coatings to Aircraft Power Plant Construction.....Maj. R. A. Jones, Air Materiel Command, U.S.A.F.

to Page 71 →

Ionic formulas for molecular formulas

for predicting the properties of enamels

By Prof. R. M. King • ASSOCIATE EDITOR; CERAMIC AND CHEMICAL ENGINEER, OHIO STATE UNIVERSITY, COLUMBUS, OHIO

Exclusive feature finish

Modern knowledge demonstrates most emphatically that the various elements present in glass are present as ions rather than molecules as was once assumed. This suggests the development of some type of ionic formula to take the place of the traditional empirical molecular formula for expressing the composition of enamels, glazes, and glass.

A batch weight, of course, is the only expression which has any operational meaning; that is, any other expression requires conversion to a batch weight before it can be compounded. Molecular formulas have enabled those trained in substituting molecule for molecule to look into the composition, as it were, but the implication that the various elements are present in molecular groups in the glassy structure is incorrect.

In view of the known ionic structure, such empirical ionic formulas as shown with this article are proposed. It is believed that they afford a more logical medium for taking a look into the structure of the glass. Enamel ground coat formulas have been used as illustrations since they are about the most complex glasses known and, hence, illustrate many principles. The ground coats chosen have been used by the National Bureau of Standards and others for research purposes.

Ions in glasses are classified as network forming (NWF) cations, network modifying (NWM) cations, and anions. The network forming cations along with oxygen and sometimes

the author

fluorine anions make up the body or network of the glass structure, while the modifying cations fill the space available in the "hole" positions in the network. The chief network forming cations are Si^{4+}, B^{3+}, P^{5+} and, in glasses, Al^{3+}. The chief network modifying cations are the alkalies and alkaline earths. The cations Be^{2+}, Zn^{2+}, Pb^{2+}, Co^{2+}, Ni^{2+} and Mn^{2+} are said to be able to act either as network formers or modifiers or even as both in the same glass. In the calculations given, these ions are considered to be modifiers.

In calculating empirical molecular formulas, it is found convenient to assign to the sum of the equivalents of one group of oxides, the RO group, a value of unity; then the equivalents of oxides or groups of oxides become fractions or multiples of unity. In calculating empirical ionic formulas, it has been found convenient and logical to assign a value of unity to the sum of the equivalents of the network forming ions. Two reasons for this selection are (1) the network forming cations are present in greater amounts than any other group of cations, and (2) the sum of these ions are used as unity in calculating a factor known as the oxygen ratio, which is defined as the ratio of the sum of equivalents of oxygen ions to the sum of equivalents of network forming ions.

Should it be desired to determine the actual number of ions present, it is only necessary to divide the number of equivalents of a given ion by 1.65×10^{-24}. Also, since the radii of all ions are known, another simple

Ground Coat Batch Weight Formulas

	No. 1	No. 11
Feldspar	31.0	31.0
Flint	11.4	18.0
Borax	37.1	37.1
Soda Ash	5.9	5.9
Soda niter	3.8	3.8
Fluorspar	9.0	3.0
Cobalt oxide (Co_3O_4)	0.5	0.5
Nickel oxide (NiO)	0.4	0.6
Manganese dioxide	0.9	1.1

Empirical Molecular Formulas

No. 1			No. 11		
RO	R_2O_3	RO_2	RO	R_2O_3	RO_2
0.155 K_2O			0.191 K_2O		
0.475 Na_2O			0.590 Na_2O		
0.312 CaF_2	0.155 Al_2O_3	1.45 SiO_2	0.127 CaF_2	0.191 Al_2O_3	2.14 SiO_2
0.016 CoO		0.527 B_2O_3	0.023 CoO		0.65 B_2O_3
0.014 NiO			0.027 NiO		
0.027 MnO			0.044 MnO		
0.999			1.002		

calculation will supply their total volume. For example, in ground coat No. 1 the number of oxygen ions is

$$\frac{2.00 \times 16}{1.65 \times 10^{-24} \times 16} = 1.212 \times 10^{24} \text{ ions}$$

of oxygen and, since oxygen has a radius of 1.40×10^{-8} cm., the volume is $1.212 \times 10^{24} \times 4/3 \times 3.1416 \times (1.4 \times 10^{-8})^3 = 13.9$ cm³ of oxygen.

Considerable information is available regarding the action of various ions. An example of the usefulness of this information has to do with rules for predicting the fusibility of a glass. Old rules given by Searle[1] for the use of molecular formulas for increase in fusibility of glazes are:

(1) Decrease the proportion of SiO_2 and increase the bases, but preserve as far as possible a composition between bisilicate and trisilicate.

(2) Use a more powerful base but retain the same molecular proportions.

(3) Increase the number of bases but retain the same molecular proportions of base to silica.

(4) Decrease the per cent of Al_2O_3 and SiO_2 but keep the base acid ratio within suitable limits.

(5) Increase the proportion of B_2O_3 with or without the reduction of SiO_2.

On the basis of ionic action Kreidl and Weyl[2] have given the following rules. A lower melting glass may be obtained by:

(1) Introduction of BO_3 triangles for SiO_4 tetrahedra.

(2) Increase of the oxygen ratio—$SiO_2 \rightarrow P_2O_5$; $SiO_2 \rightarrow Na_2OSiO_3$.

(3) Partial replacement of a net work ion by one of larger size or lower valency, the oxygen ratio being maintained ($Si^{4+} \rightarrow Ti^{4+}$ or Al^{3+}).

(4) Replacement of a modifier by one of higher potential ($Na^+ \rightarrow Li^+$) or by a larger number of modifiers ($Na^+ \rightarrow Na^+ + K^+ + Li^+$).

(5) Replacement of oxygen by monovalent ions such as F^-, Cl^-, Br^-, I^-.

A study of the two ionic formulas given above in the light of these rules indicates:

1. No marked difference in the amount of B_2O_3 content, hence rule 1 is apparently not responsible for the known higher fusibility of enamel No. 1.

2. The oxygen ratios are the same, hence rule 2 is not effective.

3. The ratio or amounts of Al and Si ions are not markedly different, thus eliminating rule 3 as significant.

4. The number and kinds of modifiers are the same but a perceptible difference exists between the sum of the equivalents, hence this difference may be partially responsible for the higher fusibility of enamel No. 1.

5. A marked difference is noted between the amount of fluorine substituted for oxygen, and no doubt rule 4 explains the greater part of the increased fusibility.

It is true that those experienced in enamel formulation could make a similar deduction from the batch weights, but the inexperienced should be able to make such deductions using the fundamental knowledge of ionic action. Also, the experienced should be able to make more accurate predictions.

[1]Alfred B. Searle, The Chemistry and Physics of Clays and Other Ceramic Materials, P. 390 (1924).

[2]N. J. Kreidl and W. A. Weyl, "The Development of Low Melting Glasses on the Basis of Structural Considerations", Glass Industry, p. 335, Sept. 1942; p. 384, Oct. 1942; p. 426, Nov. 1942; p. 465, Dec. 1942.

Empirical Ionic Formulas

No. 1			No. 11		
NWM'S	NWF'S	O and F	NWM'S	NWF'S	O and F
0.110 K+			0.100 K+		
0.338 Na+			0.309 Na+		
0.111 Ca++	0.110 Al^{3+}	2.00 O^-	0.033 Ca++	0.100 Al^{3+}	2.01 O^-
0.006 Co++	0.515 Si^{4+}	0.222 F^-	0.066 Co++	0.560 Si^{4+}	0.066 F^-
0.005 Ni++	0.375 B^{3+}		0.077 Ni++	0.340 B^{3+}	
0.009 Mn++	1.000		0.585	1.000	
0.579					

Production methods

for porcelain enameled name plates

little-heralded but important enameled items get attention in this article

By C. A. Swinehart • OWNER, PORCENAMEL PRODUCTS COMPANY, INDIANAPOLIS, INDIANA

IN May, 1947, Porcenamel Products was organized to manufacture porcelain enameled name plates and other such small units generally classified as "nuisance parts" by the large conveyor-equipped enameling plants.

Our plant occupies about 2400 feet of floor space and consists of such standard departments as metal stamping, cleaning and pickling tanks, soldering units, sandblasting units, infra-red driers, spray booths, gas and electric box type furnaces, and a silk screen printing department.

Production of parts moves along on convenient-sized trays which can be handled from step to step manually, with each operator handling two or more steps. This results in low operation cost which is an important feature of our small unit set-up. The many sizes, colors, weights and different shapes of the small plates require expert personal control of time and temperature for the different types of parts which would be difficult to set up with conveyor-type furnaces.

A very respectable volume of production is maintained as name plate specifications are placed as high as 50,000 and 60,000 at a time—usually on weekly delivery schedules. Our plant is equipped to handle a large variety of such pieces at one time.

Production cycle

Name plates originate as metal blanks in the metal stamping department. Here special dies put a flange and rounded edge on the metal so that when the enamel is applied it will cover all edges of the plates to the base line, leaving no exposed ground coat edges. This gives the plate the necessary finished appearance.

Editor's Note:

Literally millions of small porcelain enameled parts such as name plates, dials, thermometer faces, instruction plates and miscellaneous identification plates are required annually to meet the need for attractive, permanent and easy-to-clean small product parts and insignia.

While considered "nuisance items" by many of the large production plants, these items form the backbone of business for specialists in this type of work.

Next the necessary studs, screws, clips or snap holding attachments are fastened by welding to the back of the metal plates. The plates then pass through the cleaning and pickling tanks, and sometimes are sandblasted.

Infra-red drying

Following the ground coat application in the spray booth, the name plates pass through a drying unit consisting of a bank of sixty 250-watt infra-red drying lamps suspended in a horizontal position over the drying table. The entire bank of lights is kept in a constant swinging motion to distribute the heat rays uniformly. Firing as previously indicated is in box type furnaces.

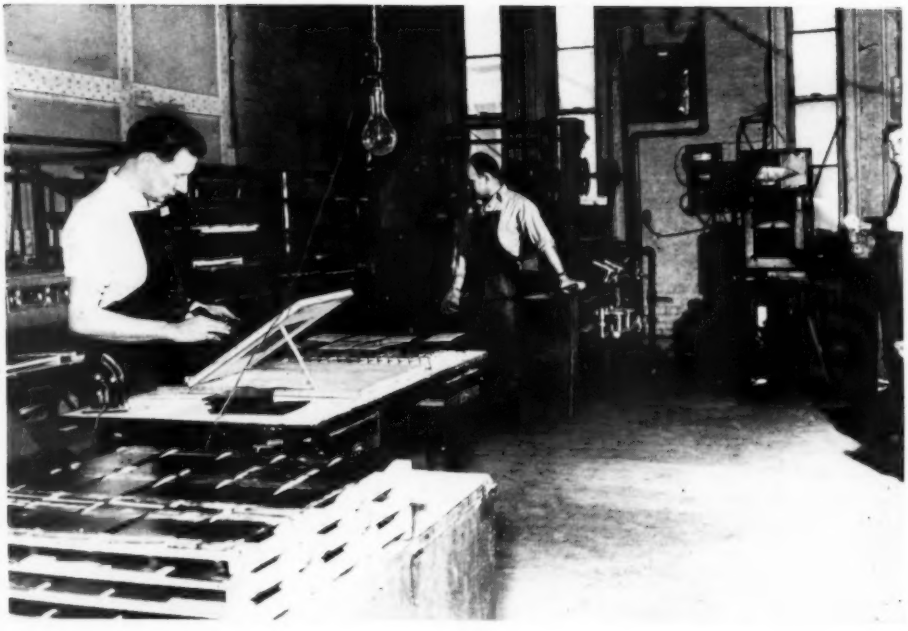
After the cover coat has been sprayed and dried, the plates are fired at a temperature near 1600° F., and they are then ready for the silk screen printing.

Silk screen process

In silk screen printing, special jigs and methods of register have been developed to give absolute accuracy and uniformity of application. Two or more colors can sometimes be printed on the name plates with one firing, at a temperature of 1400° F., after which the plates are ready for shipment.

After many years' experience in the name plate field, the writer came

Quality products that are built to last deserve attractive, long-lasting porcelain enameled name plates.



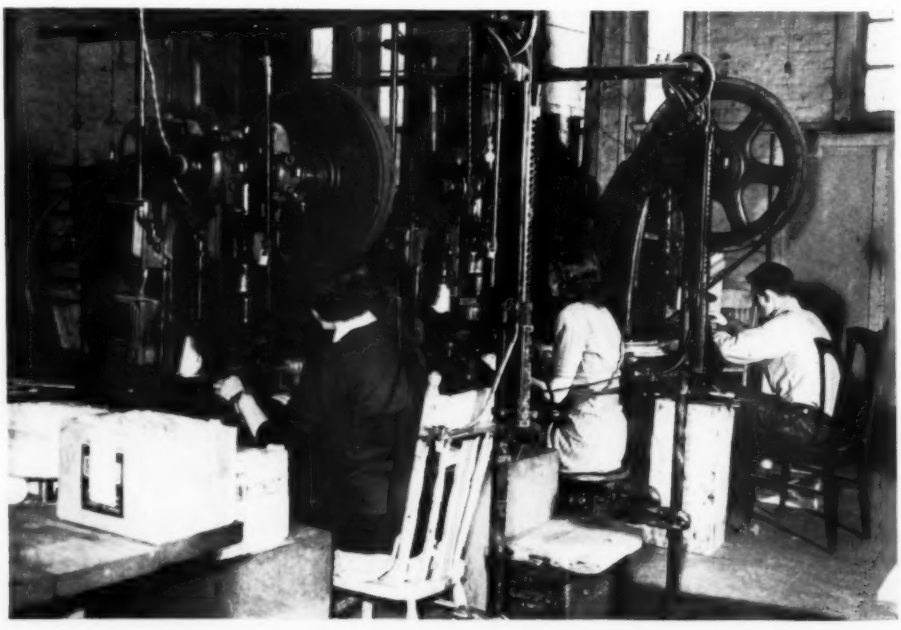
Work racks, silk screen process equipment and part of infra-red drying bank are at the left. Two small furnaces are visible in the background.

to realize that there was a great field for development and a tremendous market for a name plate with a lifetime porcelain enamel finish. One of the first things accomplished was the elimination of "exposed edges" by rounding or turning down the edge of the steel base stamping.

By using proper contrasting colors, we discovered that the utmost in display value can be accomplished in porcelain colors. We are not handicapped by the neutral tones of metals. Porcelain colors are stronger and more intense than other coloring mediums, and their application to name plates permits designers to attain the highest degree of artistic perfection in designing name plates. Porcelain enamel has brought to name plates what technicolor has given the movies.

Porcelain enameled names plates have the advantage of a lifetime finish unaffected by acids, dirt, grease, paint, heat or cold. They are streamlined, having no projections or pockets to catch dirt or cleaning cloths.

Very recently one of the largest producers of heating units called a conference of top executives to consider the scrapping of thousands of previously purchased name plates in favor of name plates of porcelain enamel. Their outstanding beauty, strong sales appeal and powerful display value were recognized as superior to other types of plates on the market.



This view of the punch press department shows type of equipment used for fabricating the small stampings. Safety devices are provided for all operators.

A new technique in enameled art

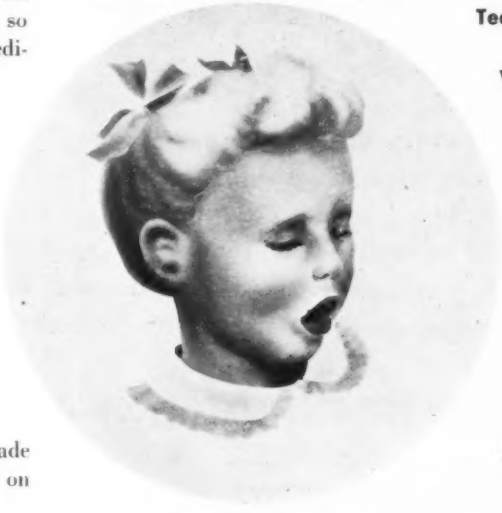
By Earl S. Perrine • URBANA, ILLINOIS

MY first interest in enameled art was literally forced upon me by friends from the Ceramics Building at the University of Illinois. They included such names as Parmelee, Petersen, Badger and Swift, which I am quite sure will be well known to many *finish* readers. It just so happens that my "studio" immediately joins this building.

The first work in color was done on ash trays and various other sundry items at the suggestion of these men. Inasmuch as we had the same general interests, my first work was done more or less as an accommodation to meet specific requests, but with a few touches of my own. Most of this work was done with whatever parts and materials were available. Some of the first paintings were made on glass but later work was done on porcelain enameled metal. One of the first examples is now at the Chemistry Museum at the University of Pittsburgh.

Striking colors

The colors were so beautiful, so striking, and so pure that I really became interested. Now the worm has turned and I am usually bothering the Ceramics Department, due to the fact that my knowledge of ceramics is very limited.



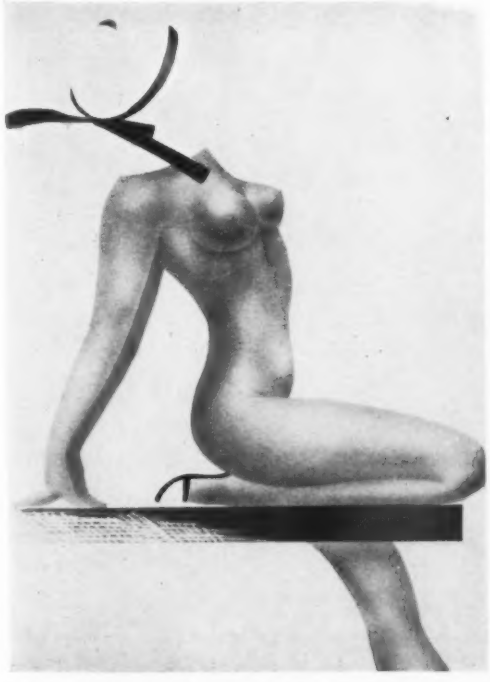
Technique similar to process printing

What I consider outstanding is the fact that we paint a complete picture, with all the necessary colors included in the finished work, by using only four or five basic colors and only one firing.

I paint the same as if I were painting on paper with the artist's airbrush. I normally use first a coat of brown, then blue, then yellow, and last red; sometimes black.

As can be seen, the technique was

to Page 68 →



Examples of paintings made with four colors — brown, blue, red and yellow — colors applied with airbrush in pure unblended form (61% pigment and 39% retouch varnish) and fired once only at 1150° F.

While color corrected photos were made to show these examples, it is impossible to reproduce in black and white the rich fresh tones and delicate shading that typifies the original enameled art.

More new members

Each month finds more new names on the P.E.I. roster — names of companies representing *leadership* in their respective fields. These companies will all receive a valuable return in technical, practical and sales assistance through P.E.I. services and each in turn will add new strength to an already alert and strong cooperative organization.

SEND FOR FREE BOOKLET ON INSTITUTE ACTIVITY

If you operate a porcelain enameling plant you belong in the P.E.I.

This emblem..... designed by P.E.I. identifies products finished in genuine Porcelain Enamel. It sets these products apart as having the highest quality finish and guides the purchaser in making his selection.

Porcelain "wallpaper" makes début

in Mr. Blandings' Dream House

AN estimated half million visitors are expected to view Miriwal, the porcelain wallpaper *(see "'Porcelain Wallpaper' Dramatizes the Versatility and Flexibility of 'Porcelain on Steel,'" in March, 1948, finish)*, in the New York version of Mr. Blandings' Dream House, which opened at 48th Street and Fifth Avenue on June 17, under the sponsorship of the New York Heart Association, for a thirteen weeks' open house.

In the New York Dream House, Mirawal appears as a suitable background for functional equipment in a simulated basement. Obviously, it was not practical to excavate for a basement on Fifth Avenue, so the simulated basement was located in the garage. Against the gleaming Mirawal background in the Blandings' Dream House are placed a furnace, a water softener unit, a woodworking hobby bench, and laundry equipment. Here the thousands of visitors can see porcelain Mirawal as a clean, durable wall finish suitable for kitchens, bathrooms, and utility rooms. Its resistance to heat, acid, rust, discoloration, and rodents present strong arguments to the prospective home builder. To these points are added choice of color.

The Mirawal installation is sponsored by Baltimore Porcelain Steel Corporation, Baltimore, Maryland, manufacturers of the material.

Lee Collins, vice president and general manager of Baltimore Porcelain Steel Corporation, and Mrs. Collins inspect the Mirawal installation at the time of the official opening by Mayor O'Dwyer.

In the New York version of Mr. Blandings' Dream House, Mirawal lines the 2-car garage used to simulate a basement. The 52" high Mirawal is in ivory, with top and bottom trim of pastel green and black, respectively.

The Washington round-up

By Wilfrid Redmond

THE proposed allocation, upon recommendation of the Office of Industry Cooperation, of 59,000 tons of steel for the manufacture of prefabricated steel houses, is being given further consideration* following a public hearing in Washington at which opposition to the program developed, particularly from the Formed Metal Plumbing Group.

Dr. C. J. Rodman, of Alliance, Ohio, warned OIC that a diversion of 59,000 tons of enameling steel into steel house production, would take about one-fourth of the amount of this grade of steel used by the entire porcelain enameling industry. He pointed out that the annual production of enameling sheets is now at 450,000 tons.

Although the agreement specifies that no enameling grades of steel be used, Dr. Rodman told OIC officials that he did not believe this assurance would protect other users of enameling steel.

"We are by no means certain," he said, "that a change will not be made in the agreement and that we will find all or a part of the 59,000 tons taken from the exceedingly small amount of enameling steel which is available for the manufacture of sanitary fixtures.

"We are informed — and this is extremely important from our viewpoint — that the agreement, once entered into, can be amended without further hearings. In other words, if the steel originally allocated does not prove satisfactory for the construction of all-steel prefabricated houses, the type designated technically as "enameling stock" can be used. Bear in mind that the Lustron house thus far has been constructed largely of enameling stock, and there is no certainty that the company will not have to continue to use enameling steel to build a satisfactory house. In other words, Lustron is depending upon a process using steel other than enameling stock. We do not know and we feel that Lustron does not know whether this process will actually work. In that event, we can expect to see tremendous pressure to change the agreement so that enameling stock can be used to build all-steel houses."

Allocation for six months

Dr. Rodman also made the point that the allocation of 59,000 tons is for six months — through February 1949 — when the present law expires — and that the steel house manufacturers can then come in again for another allocation. He recommended that the program be reconsidered by the Steel Producers Committee.

It was contended by opponents of the program, including Dr. Rodman, that the allocation is a waste of steel in that it will be used to build only 6,000 houses, while the same amount of steel would build 39,000 conventional houses.

Purpose — low cost homes

It was pointed out, however, by Senator Ralph E. Flanders (Rep., Vt.) and Housing Expediter Tighe Woods that the purpose of the program was not to produce houses in quantity but low-cost houses.

Said Senator Flanders:

"It is important to consider the question as to whether a voluntary allocation of steel should be made now rather than at some future time. There is no indication that the steel situation will be any easier or better a year or several years from now. We cannot allow the development of steel-fabricated houses to go to pieces simply because there is a large current demand for steel. The failure to make steel available to start this vital new industry would, to my mind, amount to a confession of the present inadequate steel capacity."

Meanwhile, Secretary of Commerce Charles Sawyer, before the Senate Banking and Currency Committee, served warning that the voluntary allocations plan of distributing steel under Public Law 395 is fast approaching a point where all steel users will have to come in on the program or risk curtailment of supplies.

He told the Committee:

"The existing system of voluntary allocation for iron and steel has been put under increasing strain as the number of preferred programs has been constantly enlarged. The resulting curtailment of supplies to non-agreement consumers has become more severe. This is particularly true of the thousands of small business concerns throughout the nation.

"The adjustment between urgent and non-urgent needs of the economy is becoming more and more difficult. The character of the demand-supply situation differs as between the various products. In several important categories there is a shortage of finishing capacity in addition to the overall shortage of iron and steel.

"As during a run on a bank, all iron and steel consumers are now virtually forced to join in requests for a preferred status to assure their share in the diminishing unencumbered tonnage."

An example of this change in the situation was in the case of the Formed Metal Plumbing Ware Industry Advisory Committee which has recommended development of a voluntary plan to provide steel for the manufacture of enameled steel bathtubs, sinks and lavatories, after previously rejecting an allocation agreement.

A task committee of the industry has been formed to assist OIC in working out the details of an allocation program.

In view of Secretary Sawyer's statement that the voluntary allocations program is approaching a point where all users will have to come in, it now seems probable that the Congress will not extend the authority after next February. The law was written by a Republican majority to embarrass the Administration. There was not great concern as to its workability. Its failure could be blamed upon faulty administration. If the Republicans win the election they will provide their own Administration

*See later report at end of article.

with a more efficient program for solving the steel shortage than the present voluntary agreements plan.

Stockpiling regardless of industry shortages

An important development in recent weeks is a change of policy on the part of the Munitions Board in the stockpiling of strategic materials. The Board is now directing the procurement of copper and other war materials regardless of industry shortages. The Board did not deny a report recently that the purchasing program for copper, which was scheduled for the first six months of the fiscal year 1949, has already been completed and a new one for the final half of the year is being set up. Previously, the Board has pursued a policy of buying materials for the stockpile only from industry surpluses and below market prices. The purchasing agency of the Board — the Bureau of Federal Supply — is now going into the market, making long-term contracts and buying materials at the market price and regardless of shortages in industry. Recent increases in the prices of copper, lead, and zinc, are attributed to the shortages of these metals due to stockpiling and to the fact that marginal producers are closed down because of the withdrawal of Government subsidies.

Estimates of deficits in metal supplies for 1949

The Department of Commerce recently prepared estimates of deficits in metal supplies for fiscal 1949, as follows:

Zinc, 47,700 tons; lead, 124,165 tons; and copper, 100,000 tons.

These forecasts exclude materials which will be purchased for the military stockpile, so that the actual deficits may be much greater than estimated.

These figures were submitted to the Senate Banking and Currency Committee along with the Administration's proposal for control of prices and materials. The Administration's legislative program would have frozen at the November 1947 level the prices of those commodities which have advanced in excess of 20 percent since June 1946.

Both Senate and House Banking and Currency Committees rejected these proposals. Republican leaders contended prices of many commodities have come down and that more production is the answer to high prices.

But the President's Council of Economic advisors warned in the Midyear Economic Report to Congress:

Midyear economic report

"Most consumers of steel outside the present and contemplated allocation categories will have less steel in the next 12 months than they have had during the past 12 months. Consumers who have been able to acquire their own steelmaking facilities will be in a preferred position."

The impact of the defense program will begin to be felt a year from now, the Economic Advisors forecast. These needs will "within a year from now, call for the services of 1 million persons as additions to the Armed forces, civilian employees of the Armed forces, and workers for producing military equipment.

"These manpower requirements of the defense program can only in part be drawn from new accessions to the labor force.

"There will arise numerous labor shortages in some areas of the country. Some plants undergoing a marked expansion will experience manpower shortages, particularly of key skilled and professional personnel, such as tool and die makers, instrument makers, physicists, chemists and aeronautical engineers. This will cause disturbances in some spheres of civilian production, and upward pressures and other costs."

The report warns that we should seize the opportunity while there is still time, to do something about inflation before the boom collapses.

The break in commodity prices in early 1948, at which time a tremor

to Page 67 →

" . . . and culminating the long list of fuel difficulties such as coal strikes, oil-shortages and high prices, I finally broke my axe-handle!"

Here's why it Pays to use *Century Frits* when

Porcelain Enameling **RANGES**

PORCELAIN ENAMELERS of stove and range parts find that Century *time-proved* frits pay off in increased profits. These profits result from smoother plant operation, fewer rejects, faster production, and neater overall appearance.

Sound research, laboratory checking at all phases of production, and in-the-plant testing *time-prove* all Century frits . . . whether for ground or cover coats. This constant overseeing means profit for you in fast, economical enameling operation. Send for a trial run now to check Century *time-proved* frits in your plant.

We have additional space in our plant for large or small enameling job orders. Write us today for full information.

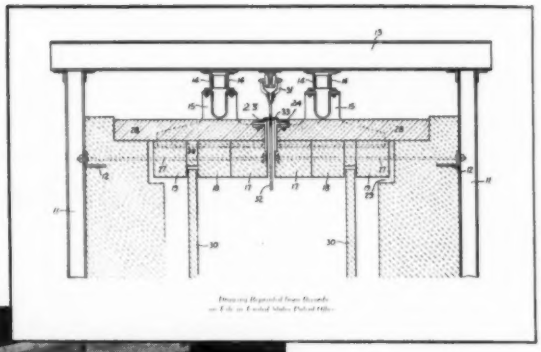
FRIT from CENTURY

FRIT MASTERS

CENTURY VITREOUS ENAMEL COMPANY, 6641-61 S. Narragansett Ave., Chicago 38, Ill.

ONLY BOLAND

"Single Flow" Furnaces have "Floating Roof" Construction



THIS REPRODUCTION OF A PATENT DRAWING SHOWS THE PRINCIPLE OF THE "FLOATING ROOF."

TYPICAL FURNACE INSTALLATION AT INGERSOLL STEEL DIV., BORG WARNER CORP.

LOOK to the roof when studying the design of your next continuous furnace. Only Boland furnaces have FLOATING ROOF construction, and it's patented. (Boland Patent No. 2,156,008.)

This roof, "built like Gibraltar," not only minimizes heat loss, but offers permanent insurance against conveyor distortion. The accompanying sketch shows the design characteristics of the roof which "carries its own weight." It's sturdily built—for long life.

BOLAND FURNACES SAVE FUEL. ASK US FOR THE FACTS ON FUEL COSTS.

This feature alone may be important enough to you to specify Boland furnaces, but in addition you get the added features of equalized temperature, heavier furnace loads and the elimination of time and labor consuming "furnace conveyor wrecks" in the Boland STRAIGHT AWAY —SINGLE FLOW continuous furnace.

ALBERT J. BOLAND COMPANY

407 NORTH EIGHTH BUILDING • ST. LOUIS 1, MO.

Designers and Builders of Continuous and Box Type Enameling Furnaces

NEWS

Youngstown establishes development division

The Youngstown Sheet and Tube Company has established an Industrial Development Division with Myron S. Curtis, manager of the sales promotion department, in charge, it has been announced.

It will be the function of the new division to contact consumers of steel, particularly customers of Youngstown, who desire to investigate the possibilities of locating in the Youngstown area, Frank Purnell, president, stated.

"The necessity of creating this new division has been emphasized by the recent action taken by the Federal Trade Commission and the Supreme Court decision in regard to the basing point elimination," said Purnell.

Douglas Aircraft to enter "metal products" field

Expansion of the Douglas Aircraft company into industrial manufacturing fields not related to the aircraft industry has been announced.

A separate division for the manufacture of a wide variety of pressed metal products has been set up and will begin to function as soon as necessary details are completed, Donald W. Douglas, president of the company, said.

At the same time he revealed that Harry Woodhead, recently president of Consolidated-Vultee Aircraft Corporation, and prior to that a leading executive in the pressed steel products business, has joined the Douglas company to become general manager of the new Metal Products Division. As his assistant, Woodhead will have A. W. Larsen, formerly purchasing director of Consolidated-Vultee and prior to that executive in charge of purchasing and material for the Maritime Commission and General Motors.

"Gene" Punderson dies

finishfoto

It is with regret that *finish* reports the death of L. Eugene Punderson (Gene to his enameler friends), president of L. E. Punderson Company, manufacturers of metal cleaners, neutralizers and drawing compounds.

Death came suddenly to Mr. Punderson, who collapsed and died Friday, July 23, on a train returning from Chicago to his home in Cleveland.

This news came as a shock to the *finish* organization. Gene Punderson was in the *finish* offices, in apparent good health, on the morning of the 22nd.

A native of Cleveland, the deceased was a graduate of Yale and Harvard Universities. Before organizing his own firm in 1939 he was district sales manager of International Chemical Company.

"Georgia Institute of Technology"

The name of the Georgia School of Technology, Atlanta, was changed to the Georgia Institute of Technology according to an announcement made recently by the school's faculty and administration.

Tinnerman Products, Inc., Cleveland, Ohio, maker of speed nuts, announced the appointment of Robert D. Williams as personnel manager. A graduate of Miami University, Oxford, Ohio, Williams began his career at Chase Brass & Copper Co.

Stearns returns to A-B Stoves

It has been reported that W. F. Stearns, who has been with Nash-Kelvinator for the past two and one-half years, has returned to A-B Stoves, Battle Creek, Michigan, where he is in charge of process control in the enamel plant.

For enameler motorists

Enameler friends of A. M. (Allie) Langbein who motor to St. Louis will want to stop in at Evergreen Cottages, Route 6, Sappington, Mo., (3 miles west of St. Louis city limits) an opening announcement for which was received recently.

Mr. Langbein was for a number of years with American Stove Company, St. Louis, in charge of porcelain enameling.

Refrigerator production important at Philco

With the refrigerator division assuming greater importance than ever before in the company's history, total sales of Philco Corporation in the second quarter of 1948 amounted to

$65,956,000, as compared with $58,661,000 in the first quarter of 1948 and $57,754,000 in the second quarter of 1947.

Bridge is new sales manager at Detroit Vapor Stove

Earle R. "Duke" Bridge has been appointed sales manager of Detroit Vapor Stove, according to Howard E. Blood, president of Borg-Warner's Detroit Vapor Stove and Norge divisions. In this position, Bridge will be in complete charge of sales of the White Star line of gas ranges.

Associated with the sale of major appliances for the past 22 years, Bridge joined Norge in 1934, and a year later was named manager of home laundry equipment sales. At war's end, he reassumed these duties and, in addition, served as manager of refrigeration sales. In 1946, he was named merchandise manager with the responsibility of coordinating the product program and the relationships between sales, manufacturing and engineering departments.

Clyde Porcelain Steel announces general pay increase

All employees of Clyde Porcelain Steel Corp., Clyde, Ohio, were granted an increase in wages in July, R. Wade Willey, vice president and general manager, announced. Willey stated that the plant-wide increase was granted to offset the present cost-of-living increases.

Clyde Porcelain Steel currently is employing about 1,200 persons and is said to be Sandusky county's largest industrial concern. In addition to assembling the Bendix Home Laundry, the company fabricates and porcelains table tops and leaves and Veos wall tile, manufactures an automatic fruit juice vending machine, and does a general porcelain enameling business.

Utility gas sales continue gains

Despite shortages of steel and other materials that restrict the expansion of production and distribution facilities of the gas utility industry, total sales of gas to ultimate consumers continued to rise in June, aggregating 2,245,092,000 therms for the month, a gain of 6.4 per cent compared with 2,110,831,000 therms sold in June of 1947, according to an American Gas Association report.

For the twelve months ending June 30, total sales of gas amounted to 30,551,223,000 therms, an increase of 8.5 per cent over the previous year. The Association's gas sales index on June 30 stood at 214.2 per cent of the 1935-39 average.

Trade press views Mullins kitchens

View from entrance of Youngstown Kitchens display in Mullins Mfg.'s space at Merchandise Mart shows beautiful flagstone terrace lobby.

Members of the trade press who viewed Mullins Mfg.'s new permanent kitchen display at The Merchandise Mart, Chicago, early in August, were told by Chas. A. Morrow, vice president in charge of merchandising for Mullins, that the public had to be sold on the idea of complete kitchens.

"The kitchen we developed 15 years ago was just about as good as the kitchens sold today," stated Morrow, "but did anyone buy them? They did not! We had to sell distributors and dealers first on the idea of handling this new merchandise. Then the three of us — manufacturers, distributors and dealers— started selling against local prejudices, restrictive codes, competitive materials and the general disinterest in modern kitchens on the part of builders, architects, landlords, and even housewives. Not one came to us and took our kitchens away. We had to create an industry where one did not exist before to bring this important contribution to the homes of America."

Conlon-Moore given award by The Financial World

The Conlon-Moore Corp., Chicago, manufacturer of household washers, ironers, ranges and heaters, has been given the highest merit award issued

by *The Financial World* for "distinguished achievement" in the preparation of its 1947 annual report.

The 28-page report was illustrated with 12 charts and 44 photographs and other pictures. It was printed in three colors.

Wyandotte Chemicals holds research seminar

Andrew Liger, head of Wyandotte industrial laboratories, and Evans Schmeling, assistant manager of firm's industrial department, inspect display of instruments for measuring surface roughness.

The third annual staff meeting of the research department of Wyandotte Chemicals Corporation, held at Hotel Statler, in Detroit, recently, featured 19 exhibits depicting various phases of the activities of the organization and arranged in trade convention style.

One session of the seminar was devoted to reports by S. T. Orr, vice president in charge of production, and twelve production and engineering executives on their part in the nearly completed $30,000,000 company expansion program, and how present and contemplated research projects would affect their future manufacturing procedures.

Benjamin F. Fairless, president of United States Steel Corp., announced recently that two subsidiary companies, Carnegie-Illinois Steel Corp. and American Bridge Co., have proposed to eastern railroads reductions in freight rates aggregating approximately 40 per cent on various iron and steel articles moving from the Pittsburgh district to the New York City and Detroit areas.

King Stove & Range develops smokeless heater

The King Stove and Range Company, Sheffield, Alabama, has announced that it has developed a smokeless heater based on the BCR-developed principles of the smokeless burning of coal.

The manufacturer stated that plans have been made for limited production this year.

Porcelain enamel in military planes and ships to be PEI Forum topic

The use of porcelain enamel in military aircraft and on shipboard will be discussed at the 10th Annual Forum of the Porcelain Enamel Institute, to be held October 13-15, at University of Illinois, Urbana.

During the war, the Army and Navy successfully replaced hard-to-get metal alloys with porcelain enamel in many vital applications where corrosion, extreme heat, and abrasion are encountered. Some of these applications will be discussed before the Forum by Maj. R. A. Jones, Air Materiel Command, USAF, and Forrest R. Nagley, materials engineer, Protective Coating Group, Research & Standards Branch, Bureau of Ships, USN.

Norge names enamel plant foreman

Noble D. Jones, formerly with Birmingham Stove & Range Co., has joined the Norge Division of Borg-Warner Corp., Herrin, Ill., as foreman of the firm's new enamel plant, according to L. R. Ardis, plant manager.

Diversey appointment

Leonard R. Lindsey has been appointed service engineer for the metal industries department of The Diversey Corporation, Chicago, according to a company announcement. Lindsey will handle the sales and servicing of the company's metal cleaning and surface preparation products in the Columbus-Dayton-Cincinnati area, it was stated.

Central enamelers fall outing

The Central District Enamelers Club will hold its Fall Outing at Alliance Country Club, Alliance, Ohio, Saturday, September 11. The program will include golfing in the afternoon and dining in the evening. Reservations must be in by September 4, according to M. Bozsin, secretary-treasurer.

New Jersey ceramic association summer meeting

Nearly 100 representatives from the ceramic industries in New Jersey and nearby states attended the annual summer meeting of the Ceramic Association of New Jersey held June 18 at Spring Lake, N. J. Following the opening of the meeting by R. R.

Danielson, Metal & Thermit Corp., president of the Association, two papers of a technical nature were read and an address of current interest on the state government was given.

Winning gas range slogan

Following a nation wide contest, the slogan "Smart Cooks Know—Gas Has Got It!" has been selected by the Domestic Range Committee of the American Gas Association for use in a gas range promotional campaign to be sponsored by the Association this fall. The winning slogan was submitted by Jane M. Schroeder, home service director of Minneapolis Gas Light Co., Minneapolis, Minn., who received a $100 United States Saving Bond.

New appointments at Clyde Porcelain Steel

Appointment of new personnel at Clyde Porcelain Steel Corp., Clyde, Ohio, has been announced by R. Wade Willey, vice president and general manager. Joseph Kieft has been appointed superintendent of all Bendix production, and Paul Parish, methods analyst.

J. Kieft

P. Parish

Kieft is in charge of the company's Plant No. 2, where Bendix Home Laundries are assembled, and of all Bendix sub-assembly operation in Plant No. 1. For 19½ years he was with Nash-Kelvinator Corp. in charge of the standards department.

Parish is in charge of the standardization of all small tools and improvement procedures in assembly methods. Prior to joining Clyde, he was plant engineer at Clemco Corp., and previously had spent 15 years in tooling and processing at Nash-Kelvinator.

Simultaneously, it was announced that Leon Phelps, formerly at Ingersoll Steel Division of Borg-Warner Corp., Chicago, and before that at Clyde Porcelain's Plant No. 2, is now general supervisor of the paint departments.

Brown Instrument adds to sales, service staffs

A large increase in the branch and regional sales and service staffs of Brown Instrument Co. was announced recently by William H. Steinkamp, field sales manager.

The new assignments include:

Atlanta—G. L. Ferguson assigned as a sales engineer; Baltimore — Wayne Cook and Carl Lower assigned as service engineers; Boston—Warren N. Smith and Albert E. Phillips assigned as service engineers; Charlotte—W. Williamson, Jr., assigned as a service engineer and R. J. Holt as sales engineer; Chicago—Bernard Fuller and Ormond Herring assigned as sales engineers; Cleveland—R. Schumaker, sales engineer; Denver—Robert Koening, service engineer; Detroit — W. DeWolf, service engineer; Dallas—Robert Harris, Jr., sales engineer; Houston—C. D. Walker, sales engineer.

Indianapolis—Barry Coleman and Robert Thomas, service engineers; Los Angeles —Richard Corbin, service, and Ralph Imbrogno, sales; New York City—A. Godfrey, sales and Ernest P. Lang, William C. Meyer and Edward J. Roach, service; Philadelphia—A. L. Rogers, Jr., sales, and Albert T. Collins, Joseph Facer and Edward A. Lytle, service; St. Louis—Keith H. Webb, service; Syracuse — Richard Caviniss and George Wilson, service; Washington, D.C.—John R. Shea, service; Kansas City—D. W. Rees, service; Omaha —H. C. Klug, sales; East Orange, N. J. —William Harris, sales.

Kapner advanced by Bellaire

At a special meeting of the directors of Bellaire Enamel Co., Sylvan L. Kapner was elected director, secretary and member of the firm's executive committee, to succeed the term of Leslie W. Hawker who held this position previous to his death on June 9. Kapner will continue as assistant to the general manager and will organize new methods of planning, it was stated.

Coleman enters stove and furnace research programs

The Coleman Company, Wichita, Kansas, producer of oil-fired heating equipment, has purchased an equity in the coal-fired smokeless stove research being sponsored jointly at Battelle Memorial Institute by Bituminous Coal Research, Inc., and fourteen stove manufacturers. Coleman has also taken the rights to manufacture the smokeless warm air furnace, it was stated.

Whistling coffee maker is porcelain enameled

A new porcelain enameled vacuum coffee maker was recently announced by The Moore Enameling and Manufacturing Company, West Lafayette, Ohio. Of *durable* glass on *unbreakable* steel, the ingenious coffee maker

A TWIST OF THE WRIST CLOSES RANGE SALES

Yes, a simple twist of the wrist helps dealers sell your ranges when you include TK Monotubes as standard equipment. Mrs. Range Buyer quickly appreciates the swivel-arm and single tube construction—exclusive Monotube features that are easier to *sell* than sell against.

Even when hot, the unit can easily be moved to an upright position. Cleaning is easier, spilled foods no longer need be left in the pan, to smoke and harden, until the unit is cool.

Greater Heating Efficiency and *Longer Life* are assured by the Monotube. *Faster Cooking* results from the increased utensil-contact area. *Lower Cooking Costs* are assured year after year—the heating element stays *flat,* maintains its original efficiency during the life of the unit.

The Monotube is a feature that can help you, your distributors and your dealers close range SALES.

the **TK MONOTUBE** *It stands alone!*

TUTTLE & KIFT, Inc.

1823 N. MONITOR AVE. • CHICAGO 39, ILL.

is an addition to the nationally advertised Memco line. It is said to be the only porcelain enameled vacuum type coffee maker.

A unique feature of the new product is a whistling vent which sounds a cheery note when the water is about to rise into the upper bowl. Three purposes of the whistling vent are to signal the housewife for timing, release excess pressure during heating, and eliminate excess vacuum while cooling.

Dr. A. G. Pincus joins Horizons research staff

Dr. Alexis G. Pincus has been appointed head of the ceramics department of Horizons Inc., according to an announcement by Dr. Eugene Wainer, director of research for the Cleveland, Ohio, firm which has been active in research for enameling plant design and operation.

Dr. Pincus is a member of the American Ceramic Society and has been an abstractor of the Society since 1935. He is also a member of the Society of Glass Technology and the American Chemical Society. At Rutgers University and Penn State College, Dr. Pincus taught on glass technology and enamels. He has given lecture series in glass and on atomic energy to technical society groups.

ACS Pittsburgh section outing, September 24

The Pittsburgh Section of the American Ceramic Society plans to open its 1948-49 season with its annual golf outing and dinner at the New Castle Country Club, Friday, September 24. Reservations should be addressed to J. W. Miller, P. O. Box 777, New Castle, Pa.

Berk & Co. to produce zirconium compounds

F. W. Berk & Company, Inc., 420 Lexington Ave., New York City, has entered the zirconium field as basic integrated producers of zirconium products, according to an announcement by M. H. McAllister, vice president.

Using raw materials from company sources in Australia, Berk is producing zirconium products at its plant in Wood Ridge, N. J., where complete facilities for the production of all types of zirconium compounds for chemical, ceramic, and metallurgical industries are now being set up.

According to Peter Telfair, formerly with Bethlehem Steel, and now in charge of sales and development work for the new Berk undertaking, equipment for producing zirconium materials for the chemical process industries is now in operation.

New Cincinnati manager for General Box Co.

Charles C. Bush has been appointed manager of the Cincinnati Division of General Box Company, succeeding E. C. Marshall, who died recently, it has been announced.

Bush is a native of Cincinnati and has been with the firm for 20 years. Since his return from Army duty, he has been assigned to the Cincinnati Division with offices in St. Bernard, Cincinnati, Ohio.

Housewares and appliance group on lake cruise

The above photo shows part of the 600 members and guests of the Housewares and Appliances Association of The Merchandise Mart, Chicago, who attended a three hour moonlight cruise of Lake Michigan aboard the S. S. City of Grand Rapids as a highlight of the summer home furnishings show.

Toledo Porcelain observes 20th anniversary

The Toledo Porcelain Enamel Products Co. observed its 20th anniversary in August with the same four officers who organized the firm continuing in the same capacities.

The firm was incorporated 20 years ago on August 20 by Earle S. Smith, president and treasurer; Erwin L. Adams, vice president in charge of sales; Leo L. Figmaka, vice president in charge of production; and S. F. Chappius, secretary.

While the company's original output was for Toledo Scale, the bulk of production today is in other products, including stove parts, refrigerator parts, display cases, auto exhaust systems, pump cylinders, bakery ovens, dental and medical equipment, food cabinets, hospital equipment,

food machinery and building panels (store fronts).

Eastern enamelers meeting

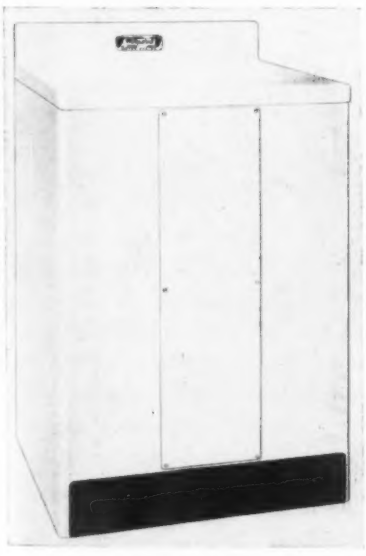
The Eastern District Enamelers Club annual outing will be held Saturday, September 11, at Rummey's Tavern, between Reading and Pottstown, Pa.

Armco buys tube company

Armco Steel Corporation has contracted to purchase the assets of Jackson Tube Co., Inc., Piqua, Ohio, Charles R. Hook, chairman of the board of Armco, has announced.

The Piqua firm will be operated as the Tubing Division of Armco effective September 1, with Samuel E. Jackson, Jackson Tube's president and founder, as manager of the new division. Jackson Tube manufactures mechanical tubing in sizes ranging from 3/8 inch to 3 inches. It is used in making furniture and household appliances, bicycles, automobiles and other products.

Hotpoint producing table top water heater



A new 40-gallon table top electric water heater is being produced by Hotpoint, Inc., according to Leonard C. Truesdell, vice president of marketing.

The cylindrical water tank is enclosed in an insulated outer steel shell in baked white enamel. The top is finished in acid-resisting white porcelain enamel.

FORUM COMMITTEE

Following is a listing of the Committee responsible for the tenth annual Porcelain Enamel Institute Forum scheduled for October 13-15, at the University of Illinois.

G. H. McIntyre
Chairman
Ferro Enamel Corp.
Cleveland, O.

A. I. Andrews
University of Illinois
Urbana, Ill.

J. J. Axilrod
McMath-Axilrod Corp.
Dallas, Tex.

W. A. Deringer
A. O. Smith Corp.
Milwaukee, Wis.

R. L. Fellows
Chicago Vitreous Enamel Products Co.
Cicero, Ill.

R. M. King
Ohio State University
Columbus, O.

J. H. Koenig
Rutgers University
New Brunswick, N. J.

A. M. Langbein
St. Louis, Mo.

E. E. Marbaker
The O. Hommel Company
Pittsburgh, Pa.

F. A. Petersen
University of Illinois
Urbana, Ill.

W. H. Pfeiffer
Frigidaire Div.,
General Motors Corp.
Dayton, O.

J. Simon
Westinghouse Electric Corp.
Mansfield, O.

George Sirovy, Jr.
Century Vitreous Enamel Co.
Chicago, Ill.

N. H. Stolte
The Enamel Products Co.
Cleveland, O.

P. Stufft
Pemco Corporation
Baltimore, Md.

George N. Tuttle
Benjamin Electric Mfg. Co.
Des Plaines, Ill.

R. C. Mahon Co. announces addition to technical staff

The affiliation of Howard G. Pankratz, industrial engineer, with The R. C. Mahon Company, Detroit, was recently announced.

A graduate of M.I.T. and a consulting engineer on industrial equipment matters, Pankratz joined the staff of the Industrial Equipment Division of Mahon — a division specializing in planning, engineering, building and installing complete conveyorized finishing systems for the application of porcelain enamel, lacquer, paint and varnish. These complete finishing systems include metal cleaning and rust proofing equipment, dry-off ovens, hydro-filter spray booths, filtered air supply systems for pressurized spraying enclosures, drying and baking ovens, paint reclamation systems, and dust collecting systems.

IFMA contest on industrial furnaces ends September 30

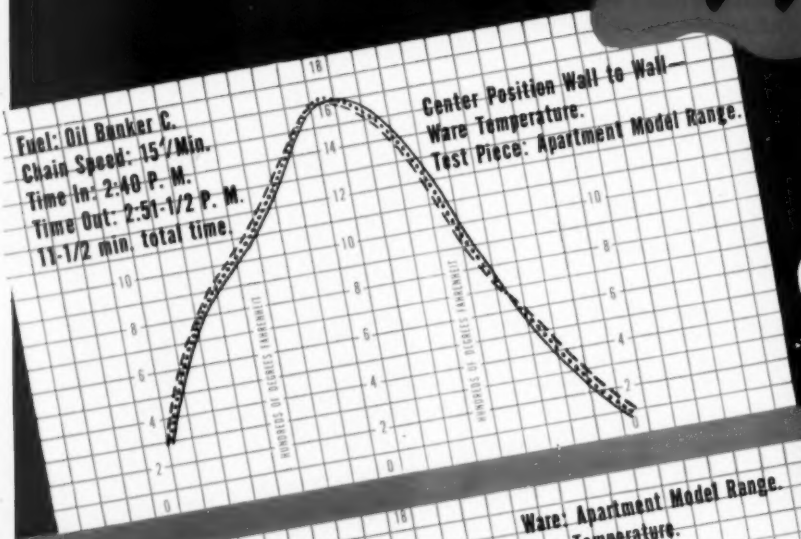
A contest for the best articles published in trade papers on the advantages derived from the use of modern industrial furnaces, ovens and kilns ends September 30, publication deadline, it has been announced.

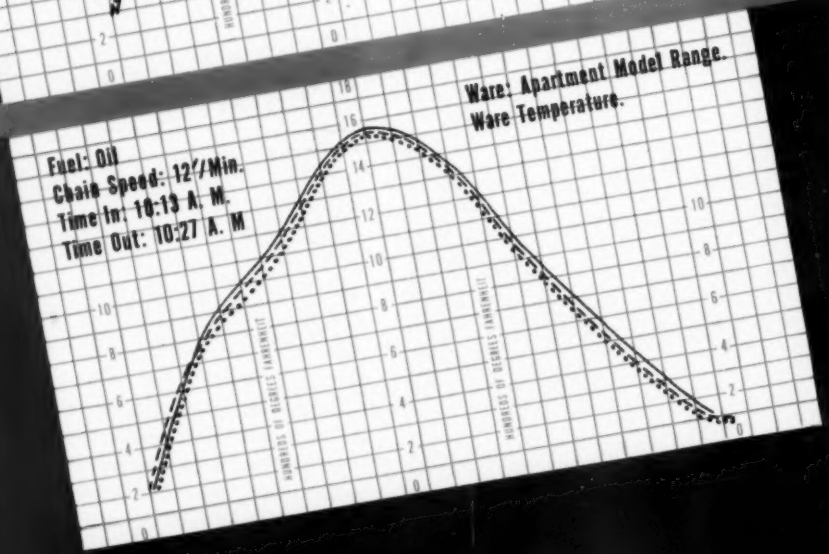
Sponsored by the Industrial Furn-

to Page 66 →

HERE'S THE PROOF!

Center Wall





Top left: Curve shows even horizontal heat distribution on both sides and center of the ware.

Bottom left: Curve shows vertical temperature gradients recorded simultaneously at top, center and bottom of the ware.

Examine the curves above. Note how closely the temperature gradients (both vertical and horizontal) parallel each other. At no place on the ware does the temperature vary more than 20 degrees from the time the ware enters and leaves the "hot zone". That's the kind of heat distribution we've all been looking for!

Such uniform heat distribution is possible because Ferro Continuous U-type Furnaces, with Center Wall Muffle, have more than 40% additional radiation area. This results in balanced heat distribution at all points on the ware . . . exceptional heating efficiency (through increased utilization of combustion) . . . plus lower operating costs and extended refractory life.

If you are considering a new furnace or want to improve the efficiency of your present installation—have Ferro engineers tell you more about this new, tested and proved Center Wall Muffle furnace construction. Write today for details.

Fabricating and enameling plants continue to build and modernize

EVERYWHERE throughout the fabricating and porcelain enameling industries there is continued activity as new plants take shape and modernization projects are completed in existing plant facilities.

The photographs on this page are typical of many major plant improvements either just completed or now in progress. In this instance three major improvement projects totaling more than $365,000 have been completed at the Warren, Ohio plant of Mullins Manufacturing Corp. The improvements include roofing over an old "die court" to create a spacious storage area; the installation of a new 900-ton press; and a new continuous enameling furnace and building to house it.

The new press, which cost over $150,000 installed, is already doing its daily job of stamping sink tops which will take their places in "Youngstown Kitchens".

The enameling furnace has already been brought up to heat and it is expected that before this information is in print that the furnace will be in full operation turning out glistening porcelain enameled products.

An inspection of today's fabricating and enameling plants throughout the country, plus new facilities not yet in production, plus modernization plans not yet under way, shows a tremendous step forward in most plants when compared with previous facilities.

Such advancement by individual industry units means healthy advancement for industry as a whole. The fabricating and finishing plants are better situated than ever before to produce quality components in quantity.

New Supplies and Equipment

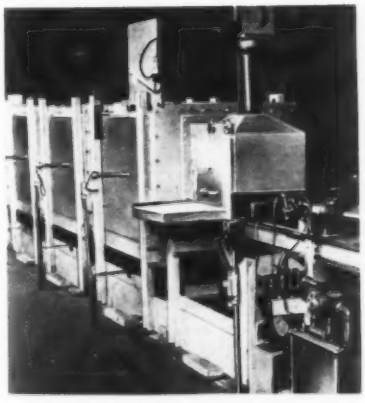
Continuous filter for neutralized waste pickle liquors

A new continuous vacuum filter permits industrial plants to abide by state pollution laws and get rid of waste pickle liquor, according to the manufacturer.

Used in conjunction with any waste-acid neutralizing process which results in a suspension of iron oxides and other solids in a neutralized solution, the "FEinc" continuous filter is said to be capable of separating this suspension into easily handled solid cake, and clear filtrate which can be released into streams without danger of acid pollution.

Write Filtration Engineers, Inc., Department F, 858 Summer Avenue, Newark 4, New Jersey.

New kiln for production of grinding wheels

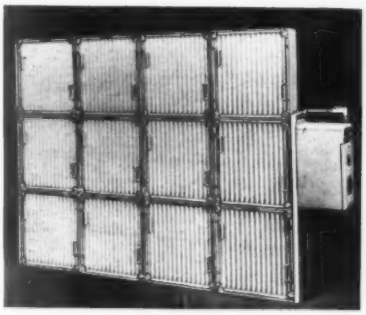


The research personnel of three divisions of The Carborundum Company have developed a new type of kiln for the production of grinding wheels. It is said to be a revolutionary combination of product properties and engineering development. The kiln embodies new and much more accurate "zone firing" methods for scientific control of the firing cycle — a most critical point in the manufacture of grinding wheels.

According to the manufacturer, the creation and development of the new kiln was made possible by the unusual properties of "globar" nonmetallic heating elements in combination with "mullfrax-s" electric furnace mullite and "carbofrax" silicon carbide super-refractory materials.

The technical groups of the Abrasives, Globar, and Refractories Divisions of The Carborundum Company were involved in the building and testing of the new kiln.

Electronic air filter



A new electronic air filter is basically an electronic precipitator without an ionizing unit and contains a collector element of electrostatically charged paper. Since the unit will continue to function as an efficient air filter when de-energized, it is stated that its operation may be varied to suit the dust condition — as an electronic air cleaner during the winter months when a smoky atmosphere is prevalent, and as a dry-type air filter during the summer.

For details, write for Bulletin 257-F, American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Ky.

Five stage washer

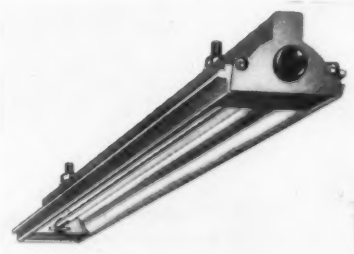
This equipment consists of five fully enclosed units totalling a length of 56′. It is 9′ high and 6′-6″ wide with two parallel overhead conveyors running the entire length and separated by a center partition. Pumps, tanks and other facilities serve both sides.

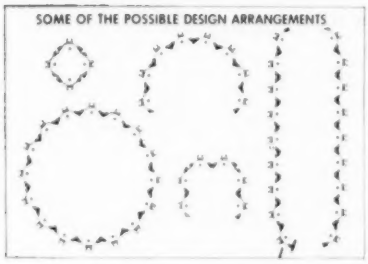
The automatic cycle includes two thoro-wash and coating operations, clear rinse, mild acid rinse, and drying.

This type of equipment is used in some refrigerator plants for cleaning compressor parts in unit assembly.

For additional information, write Department F, The Alvey-Ferguson Company, 75 Disney Street (Oakley), Cincinnati 9, Ohio.

All-metal electric radiant heaters





High heat intensity and utilization of almost the entire infrared band result in a new and improved type of infrared heating with Chromalox all-metal electric radiant heaters, according to an announcement. These glassless, glareless heaters were designed for drying, baking and preheating where a longer-wave infrared heat source is desired and where rugged, all metal construction is preferable.

The new electric radiant heater has a high-temperature enclosed type heating element mounted in a rigid body. The Inconel-sheathed tubular electric heating unit operates at temperatures of 1000° to 1400° F.

Contact Edwin L. Wiegand Company, 7500 Thomas Blvd., Pittsburgh 8, Pa.

You're in Good Company

● More and more, topflight manufacturers are using PORCELFRIT to protect their good reputations.

It isn't simply because PORCELFRIT is the result of long and rigorous laboratory development. It isn't just because it's "plant tested" in our own job enameling plant. It's also because we gladly send our own trained ceramic engineers, at no obligation to you, to make sure that PORCELFRIT will work properly on *your* product. That kind of follow-through service is winning Ing-Rich plenty of friends among manufacturers to whom quality means everything.

Florence Pot-Type
Driven-Aire Oil Heater
Model PCF10

Manufactured by
FLORENCE STOVE COMPANY
Gardner, Massachusetts
Kankakee, Illinois
Lewisburg, Tennessee

When You Use . . . .

INGRAM-RICHARDSON MFG. CO., OF INDIANA, INC.

OFFICES, LABORATORY AND

PLANT, FRANKFORT, INDIANA

PORCELFRIT

New industrial literature

Brochure on blowers

A new brochure entitled "Lungs for Industry" contains a listing of blowers, fans, and exhausters for use in blowing, heating, cooling, conveying, aerating, separating, and agitating. The manufacturer states that all classes of construction are built of hot rolled steel, special alloys, or nonferrous metals in types and gauges required for particular applications or use.

Contact General Blower Company, 510 N. Dearborn St., Chicago, Ill.

Re-issue of booklet on packing industrial products

"Your Product in Wirebounds," a booklet designed for the benefit of those concerned with packing industrial products for shipping, has just been re-issued.

The booklet is profusely illustrated throughout to demonstrate the use of wirebound shipping boxes and crates for industrial products in both domestic and export trade. It demonstrates the multitude of variations in design, types, and styles of wirebound shipping containers, as well as the numerous types of products now being carried safely and economically in such containers.

Copies may be had without charge upon request to Wirebound Box Manufacturers Association, 105 S. La Salle St., Chicago 3, Ill.

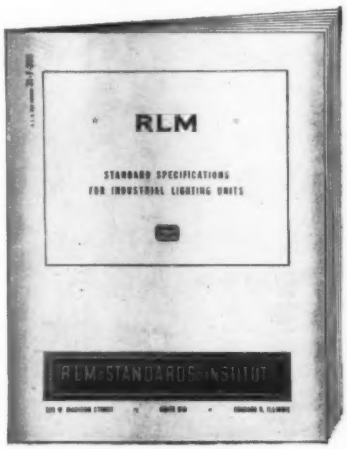
Booklet lists shipping container enemies

A 12-page, 2-color booklet, entitled "OK on Delivery", lists principal damage causes that shippers are in the best position to correct, and explains how they can go about it.

Pictorially described as shipping container enemies are: (1) uncovered freight car floor racks which dent, crease, and rip fibreboard containers, (2) failure to remove protruding nails, pieces of strap, lumber, or wire left in the walls and floors of freight cars, (3) loose loading, (4) inadequate bracing, (5) incorrect car door blocking, (6) dirty cars, and (7) poor cargo arrangement and overloading.

The booklet is being distributed through the Shipping Container Institute's members to their customers. Copies may also be obtained, at no charge, from the Institute's office, 475 Fifth Avenue, New York 17, N. Y.

RLM specification guide



The RLM specification guide for buyers, specifiers and sellers of industrial lighting equipment has been reprinted. It is available without charge to electrical contractors, wholesalers, architects, utility lighting men, and others interested in the proper planning of lighting for industry, business, schools, etc.

Write the RLM Standards Institute, 326 Madison St., Chicago 6, Ill.

Study of gas appliance venting practices

An engineering bulletin, entitled "Research in Venting Direct Gas Heaters when no Chimney Connections Are Available," reports the initial investigation of Purdue Research Foundation on a project sponsored by the A.G.A. committee on domestic gas research.

The material in the bulletin was collected in various parts of the country and illustrates conditions that exist in both manufactured and natural gas areas. It analyzes and appraises the venting problem, particularly as it concerns space heaters, and it discusses in detail many illustrated examples with the object of pointing out why installations sometime fail and what can be done to overcome these conditions.

Copies of the 68-page bulletin are available at $1 per copy postpaid from American Gas Association, 420 Lexington Ave., New York 17, N. Y.

Industrial tape review

A new "Texcel" predetermined length dispenser which eliminates waste of tape and cuts labor cost of taping operations is featured in issue No. 9 of Industrial Tape Corporation's "Industrial Review." It was stated that "Texcel" may be used on steel as a protection against scratches while in transit or during fabrication.

For further information, write G. E. Chisholm, Industrial Tape Corporation, New Brunswick, N. J.

Bulletin on die casting machines

A new bulletin describes a high pressure hydraulic die casting machine which can be furnished either with a hot metal end for casting zinc, tin or lead; or as a cold chamber machine for casting aluminum, magnesium or brass.

If a universal machine is desired, both types of hot metal ends can be furnished, and a quick changeover can be made from one of the other by any machinery handling crew without special tools.

Contact G. A. Miller, The Cleveland Automatic Machine Co., 4932 Beech Street, Cincinnati 12, Ohio.

Supplement to blue book of stamping manufacturers

The 1948 supplement to Volume IV of "The Blue Book of Stamping Manufacturers" lists names and facilities of members who joined the Pressed Metal Institute since October, 1947, as well as present officers and trustees.

Copies of the supplement can be

obtained from the Institute headquarters, 829 Union Commerce Building, Cleveland, Ohio.

Information on spray nozzles

Bulletin 14 contains information regarding "Rotojet" spray nozzles and their application to metal cleaning and treating equipment. It was stated that there is a spray nozzle available to withstand the action of practically any solution in common use. The bulletin contains diagrams, tables and other mechanical data of reference value to manufacturers, designers and users of metal treating and cleaning equipment.

Contact Binks Manufacturing Co., 3114 Carroll Ave., Chicago 12, Ill.

Report on quality control

Special emphasis should be placed on management training if industrial areas are to benefit from statistical quality control systems, according to a report (PB-88842, Industrial Project on Statistical Quality Control, 55 pages) available at $1 per copy from Office of Technical Services, Department of Commerce, Washington 25, D. C. It was stated that checks or money orders should be payable to the Treasurer of the United States.

NEWS

→ *from Page 59*

ace Manufacturers Association, Inc., the contest provides for the awarding of $1500 in prizes for the best articles.

Chicago enamelers fall meeting

The Chicago District Enamelers Club's first meeting of the 1948-49 season will be held Saturday, September 25, at the LaSalle Hotel. A feature of the meeting will be a talk by Wes Martin on the A. O. Smith Corporation "Harvestores" (silos), one of which attracted a great deal of attention at the Wisconsin Centennial State Fair, according to Rudyard Porter, chairman of the CDEC publicity committee.

Other future Club meeting dates were announced for December 4 and February 26. The meetings are on Saturdays, and will start with a noon luncheon.

G. W. Hofstetter, Club president, has announced the following committee chairmanships: membership, M. B. Gibbs, American Stove; program, Forrest Nelson, A. O. Smith; publicity and education, Rudyard Porter, Carnegie-Illinois.

Home courses on gas industry

The Institute of Gas Technology, Chicago, has announced plans for home study courses on the gas industry. Three courses, one on manu-

factured gas, another on natural gas, including transmission, and a third on distribution and utilization will be given, it was stated.

Nineteen degrees in ceramics conferred by Rutgers University

Nineteen students from the School of Ceramics, Rutgers University, New Brunswick, N. J., received Bachelor of Science degrees at the June commencement exercises.

Breliant Neon enters architectural porcelain field

Word comes to *finish* that Breliant Neon Products, Forest Park, Ill., for 12 years in neon sign business, has expanded to include architectural store front work. J. L. and E. I. Breliant are partners in the firm which designs, engineers, and erects architectural porcelain enamel. The firm can handle store front work and neon signs as an integral unit, a report states.

Washington round-up

(Continued from Page 50)

of uncertainty ran through the whole economy, should have been sufficient warning, the report said.

"In short," said the President's advisory council, "we have this very year had a significant warning while there has still been opportunity to act in time. Far from being satisfied, because the lack of action thus far taken has not yet reaped the ultimate consequences of inflation, we should profit by this warning and vigorously seize the additional grant of time that circumstances have accorded to us. The most dangerous error that could overtake us as a nation would be to assume that the problem has disappeared, or that our efforts should be abated because we have thus far avoided serious reverses or because the basic conditions for continued prosperity continue to be sound. It is typical for inflationary and speculative booms to collapse while business sentiment is still confident."

Steel allocation approved

(Report Aug. 11, 1948)

Secretary of Commerce Charles Sawyer recently approved a voluntary plan providing for the allocation by the steel industry of 59,000 tons of steel sheet and strip for the manufacture of factory-made steel houses.

Approximately 42,000 tons will be allocated to the Lustron porcelain enamel steel house.

Mr. Sawyer said that the allocation had been criticised because one of the companies which will receive some steel has received a loan from RFC. He said this fact did not in anyway affect his decision because it is not the jurisdiction of the Department of Commerce to determine whether or not such loans are wisely made. *(The reference was to the Lustron Corporation.)*

Actual allocations will be made on a graduated basis to six steel house companies, with small initial allotments stepped up monthly during the life of the program until the 59,000-ton set aside is exhausted.

A new technique in enameled art

(Continued from Page 45)

picked up from the four-color process printing. All colors, shades, and tones are in the finished work, as in the case of four-color printing. Obviously, there is no "dot" structure as in the case of printing.

Work requires good flow characteristics in color

The greatest trouble I have had in trying to do this work is in making the colors flow through the airbrush with the same ease as artists' oil colors.

I presume the average enameler would consider a "small" airbrush as being about quart size. For this type of work the airbrush takes only about ¼ oz. of color.

As I write this brief description, I have before me a chart and samples reporting experiments conducted in trying to find the right vehicle for the dry colors.

A variety of different materials were used, such as bentonite, mucilage, wetting agent, shellac, retouch varnish, etc. Ease of flow through the airbrush is most important. The samples were checked for color, scratch resistance before firing, and smoothness of finish. The experiments indicated that retouch varnish offers the best vehicle. This material is a spirit "alcohol" varnish made of a natural resin.

The scratch resistance before firing was observed, because I was looking for something that would hold the colors to the plate and offer more resistance to handling than is normally expected of porcelain enamel in the bisque.

I now have regular airbrush colors, compliments of one of the leading ceramic color houses, and while they do not flow as readily through the brush as regular artists' oil colors, they present a distinct improvement over the early experiments.

Masks used for definite lines

Many of the small paintings have been made using a frisket or mask, as the slick surface of the porcelain enamel has a tendency to let the color spread out due to the force of the air, resulting in "fuzzy" edges where no mask is used. However, some work has been done without the mask.

Much of the work has been on small sample plates and test panels which are actually too small for good work, as it requires a little space to do good freehand airbrush work.

The commercial viewpoint

Many artists frown on the airbrush but, frankly, I can see no way to get "full-color" reproductions in any other manner with only one firing.

Commercially, I see this type of porcelain enamel painting used on permanent billboards, where the character of the advertisement and the location make it desirable to have a beautiful and colorful subject presentation in which the temporary na-

ture of paper and paint makes the standard billboard unsatisfactory. I can see such displays, in either one sheet or twenty-four sheet size, which could be painted and fired in sections at the factory and shipped to the site for mounting.

It obviously would be impossible to compete with the silk screen process on high quantity production where silk screen results are satisfactory, but on large work or smaller runs the airbrush technique should be readily applicable with the use of a mask as a guide.

Other commercial possibilities are presented through use on architectural porcelain enamel — store and theatre fronts as well as for interior decoration for buildings, subway stations, and even in passenger trains— as a matter of fact, for any kind of permanent commercial display where it is desired to get the colorful effects made possible by this new technique in porcelain enameled art.

I repeat that my early experimental work was carried out under "duress," but I can now see definite commercial possibilities through future development of the airbrush method for applying ceramic colors on a permanent "canvas" of porcelain enameled metal.

Play on employee-management relations

"Foreman Blues . . or . . Production Must Go On" is the title of a play staged recently in the factory of American Central Division — Avco Mfg. Corp. The actors were union workers, members of C.I.O. and U.A.W.

The play is available in booklet form upon request to Wm. F. Valentin, director of publicity, American Central Division — Avco Mfg. Corp., Connersville, Ind.

U. S. Steel Corporation income for the second quarter of 1948, before declaration of dividends, is reported at $32,585,677, as compared with $33,957,341 for the first quarter.

Comments from home laundry manufacturers

(Continued from Page 34)

finding that the latter was the most satisfactory of the three because of the ease of keeping it clean, its finish, its color, etc."

Porcelain enamel tub far ahead

Charles Bassett, One Minute Washer Company —

"During the many years it has been our privilege to serve the trade we have produced the tub on the One Minute Washers of many different metals from the cypress wood tub to the present beautiful glistening white porcelain enamel tub, and from every standpoint, beauty, durability, satisfaction, cleanliness and sanitation. Our present porcelain enamel tub is so far ahead that there is no comparison.

"Your magazine "Finish" is doing an excellent job in bringing out the advantages of porcelain enamel."

Porcelain tubs most serviceable

A. C. Scott, vice president in charge of sales, Apex Electrical Manufacturing Company —

"We have always considered porcelain tubs on our washers to be the most serviceable. It is our belief that porcelain enamel aids in holding hot water temperature; that it is considerably more durable and resistant to both 'damage' and discoloration than baked enamel; and that it is easier to clean. Porcelain tubs are used on Apex 'Spiral Dasher' Washers. . . .

"We are now entering production on our new Automatic washer, which will have a porcelain tub. . . .

"We are continuing to use the porcelain tub and porcelain top-cover and lid-frame on the Dish-A-Matic dishwasher."

Large automatic washer market

Judson S. Sayre, president, Bendix Home Appliances, Inc. —

"The automatic washer market has only been scratched. There is only 7% saturation, increasing recognition of the advantages of automatic home laundering, practically no replacement sales yet evident. It is therefore obvious that the automatic home laundry business will provide the appliance dealer with his most fertile market, with his greatest volume and profit potential for at least five years to come. The immediate outlook is good because the market for this major appliance has been broadened by consumer acceptance and lower prices."

No limit to good comments on p.e.

F. W. McGrath, vice president in charge of sales, Appliance Manufacturing Company —

"There is, of course, no limit to the good things which can be said of porcelain enamel on steel, in washing machine tubs."

Ironer sales outlook never better

J. Groshans, general sales manager, Simplex Division, Barlow & Seelig Mfg. Co.—

"The future outlook for ironer sales has never been better in the history of the ironer industry than they are today. More people are beginning to realize how much time and effort that an ironer actually saves the housewife. . . . Sales of ironers this year should reach an all-time high for our industry and the sales curve should continue upward in the years to come because today the ironer manufacturers are offering the housewife not only a fine piece of equipment to lighten her household tasks, but are also offering ironers in a price range that will interest buyers in all income groups. . . .

"The dealers should also recognize the tremendous market that is ahead because with the saturation of only 7% of all the wired homes. . . .

"Never in the history of our company have we received as many consumer inquiries as we are today. While a great number of these are prompted by our national advertising campaign, nevertheless a great number of these are also being received from women who have become cognizant that the ironer is the greatest labor saving device in the home today."

Public favors porcelain tub unit

W. J. Dickinson, vice president and sales manager, Automatic Washer Company —

"In the Duo-Spin you will be pleased to note, and we are equally happy to offer what we will term a full porcelain job, in that the washing compartment and the spinner tank are both of beautiful, lustrous, white porcelain enamel.

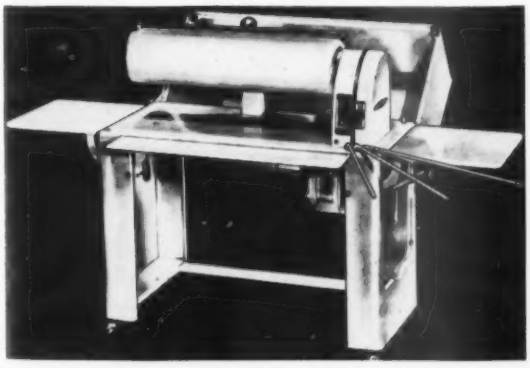
"The Press-Toe model is something new, in that it is a conventional washer employing the use of a wringer, but when not in use the washer becomes a rectangular cabinet and can be spaced in the kitchen and will harmonize beautifully with the other kitchen appointments. When the washer is to be used, by removing the lid and pressing a toe lever the porcelain tub and wringer rise to the surface, thus becoming a conventional wringer-type machine.

"It goes without saying that the buying public insofar as washers are concerned still favor the porcelain tub unit, as up to date no other finish can match the beauty of porcelain, nor is there any other finish on the mind of the customer regarding the ease in upkeep as is to be found in porcelain enamel."

More home laundry products

Blackstone

Universal



Porcelain enamel institute forum

(Continued from Page 40)

Development of Porcelain Enamel Coatings on Metals for Navy Shipboard Service.....Forrest R. Nagley, Materials Engineer, Protective Coatings Group, Research & Standards Branch Bureau of Ships, U.S. Navy

Progress Report on Porcelain Enamel Research at the National Bureau of Standards.....Allen C. Francisco, P.E.I. Research Fellow, National Bureau of Standards

Friday Afternoon, October 15

1:30 Board of Experts
Master of Ceremonies
Dr. G. H. McIntyre, Director of Research, Ferro Enamel Corp.
Members of the Board:
A. S. Ault, Asst. Mgr. Sales & Service Chicago Vitreous Enamel Product Co.
R. D. Beck, Sales Engineer, The O. Hommel Co.
H. L. Cook, Superintendent Enamel Dept., Ingersoll Steel Division, Borg-Warner Corp.
R. L. Cook, Prof. Ceramic Engineering, University of Illinois
Karl Kautz, Ceramic Engineer, Climax Molybdenum Co.
W. N. Noble, Mgr. Frit Div., Ferro Enamel Corp.
W. H. Pfeiffer, Materials and Process Eng., Frigidaire Division, General Motors Corp.
R. Porter, Carnegie-Illinois Steel Corp.
C. P. Scripture, Vice Pres., Ingram-Richardson Mfg. Co. of Indiana
E. H. Shands, Director of Engineering and Development, Geo. D. Roper Corp.
J. B. Willis, Service Manager, Pemco Corp.

4:30 Adjournment
See Forum Committee listed in news section.